Text Search

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=> file HCAPLUS
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FILE COVERS 1907 - 27 Nov 2007  VOL 147 ISS 23
FILE LAST UPDATED: 26 Nov 2007  (20071126/ED)

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 This file contains CAS Registry Numbers for easy and accurate
 substance identification.
'OBI' IS DEFAULT SEARCH FIELD FOR 'HCAPLUS' FILE

=> D QUE L67
L2            1 SEA FILE=REGISTRY ABB=ON  PLU=ON  115-07-1/RN
L3        44796 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L2
L4       325383 SEA FILE=HCAPLUS ABB=ON  PLU=ON  OXIDATION+NT,OLD/CT
L5         4242 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L3 AND L4
L14       44875 SEA FILE=HCAPLUS ABB=ON  PLU=ON  HEAT EXCHANGERS+OLD,NT/CT
L16       40803 SEA FILE=HCAPLUS ABB=ON  PLU=ON  HEAT EXCHANGE?/OBI
L17       76457 SEA FILE=HCAPLUS ABB=ON  PLU=ON  HEAT EXCHANGE?/BI
L25      237809 SEA FILE=HCAPLUS ABB=ON  PLU=ON  MACROPARTICLE/OBI OR SPHERE/OB
                I OR PELLET DISK/OBI OR HOLLOW TUBE/OBI OR TUBE/OBI OR ROD/OBI
L58           1 SEA FILE=REGISTRY ABB=ON  PLU=ON  ACRYLIC ACID/CN
L59       42797 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L58
L60       16115 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L59 AND PREP/RL
L61         330 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L5 AND L60
L63          10 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L61 AND L14
L64          12 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L61 AND L16
L65          21 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L61 AND L17
L66          14 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L61 AND L25
L67          21 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L63 OR L64 OR L65 OR L66)
                AND (PRY<=2003 OR AY<=2003 OR PY<=2003)


=> S L67 NOT L35
L83          21 L67 NOT L35

=> FILE WPIX
FILE 'WPIX' ENTERED AT 14:43:42 ON 27 NOV 2007
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FILE LAST UPDATED:                          26 NOV 2007   <20071126/UP>
MOST RECENT THOMSON SCIENTIFIC UPDATE:       200776       <200776/DW>
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DERWENT WORLD PATENTS INDEX SUBSCRIBER FILE, COVERS 1963 TO DATE

>>> IPC Reform backfile reclassification has been loaded to September 6th
    2007. No update date (UP) has been created for the reclassified
    documents, but they can be identified by 20060101/UPIC and
    20061231/UPIC, 20070601/UPIC and 20071001/UPIC. <<<


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http://www.stn-international.de/training_center/patents/stn_guide.pdf

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http://scientific.thomson.com/support/patents/coverage/latestupdates/

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http://www.stn-international.com/archive/presentations/DWPIAnaVist2_0710.pdf

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'BI,ABEX' IS DEFAULT SEARCH FIELD FOR 'WPIX' FILE

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L2             1 SEA FILE=REGISTRY ABB=ON  PLU=ON  115-07-1/RN
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L44       126056 SEA FILE=WPIX ABB=ON  PLU=ON  L2 OR L43
L45       288327 SEA FILE=WPIX ABB=ON  PLU=ON  OXIDI?/BI,ABEX OR OXIDA?/BI,ABEX

L49      1179846 SEA FILE=WPIX ABB=ON  PLU=ON  MACROPARTICLE/OBI OR SPHERE/OBI
                 OR PELLET DISK/OBI OR HOLLOW TUBE/OBI OR TUBE/OBI OR ROD/OBI
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L68              SEL  PLU=ON  L58 1- NAME :       7 TERMS
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L70        68109 SEA FILE=WPIX ABB=ON  PLU=ON  L58 OR L69
L72         8141 SEA FILE=WPIX ABB=ON  PLU=ON  L44 AND L70
L73         1099 SEA FILE=WPIX ABB=ON  PLU=ON  L72 AND L45
L74          155 SEA FILE=WPIX ABB=ON  PLU=ON  L73 AND L49
L75           95 SEA FILE=WPIX ABB=ON  PLU=ON  L74 AND L54
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=> S L77 NOT L81
L84           15 L77 NOT L81

=> DUP REM L83 L77
FILE 'HCAPLUS' ENTERED AT 14:44:02 ON 27 NOV 2007
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FILE 'WPIX' ENTERED AT 14:44:02 ON 27 NOV 2007
COPYRIGHT (C) 2007 THE THOMSON CORPORATION
PROCESSING COMPLETED FOR L83
PROCESSING COMPLETED FOR L77
L85            35 DUP REM L83 L77 (2 DUPLICATES REMOVED)
                 ANSWERS '1-21' FROM FILE HCAPLUS
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ANSWERS '22-35' FROM FILE WPIX

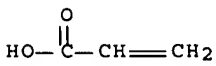
=>
=> D IBIB ED ABS HITSTR 1-21; D IBIB ED AB HITSTR 22-35

L85 ANSWER 1 OF 35 HCAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 1
ACCESSION NUMBER: 2005:612225 HCAPLUS Full-text
DOCUMENT NUMBER: 143:97794
TITLE: Catalytic partial oxidation method for producing unsaturated aldehydes and/or unsaturated fatty acids
INVENTOR(S): Shin, Hyun-Jong; Yoo, Yeon-Shick; Choi, Byung-Yul; Choi, Young-Hyun; Cho, Young-Jin; Kim, Duk-Ki; Park, Joo-Yeon; Park, Kwang-Ho
PATENT ASSIGNEE(S): LG Chem, Ltd., S. Korea
SOURCE: PCT Int. Appl., 27 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

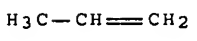
PATENT NO.	KIND	DATE	APPLICATION NO.		DATE	
WO 2005063673	A1	20050714	WO 2004-KR3433		20041224	<--
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW						
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG						
US 2005209484	A1	20050922	US 2004-21442		20041223	<--
US 7265250	B2	20070904				
EP 1697294	A1	20060906	EP 2004-808562		20041224	<--
R: DE, FR						
CN 1871201	A	20061129	CN 2004-80031116		20041224	<--
JP 2007509051	T	20070412	JP 2006-535281		20041224	<--
KR 2005067096	A	20050630	KR 2004-112729		20041227	<--
IN 2006KN00737	A	20070803	IN 2006-KN737		20060328	<--
PRIORITY APPLN. INFO.:			KR 2003-97863	A	20031226	<--
			WO 2004-KR3433	W	20041224	

ED Entered STN: 15 Jul 2005
AB A method is described for producing unsatd. aldehydes (e.g., acrolein) or unsatd. fatty acids (e.g., acrylic acid) from at least one compound selected from propylene, propane, (meth)acrolein, isobutylene, tert-Bu alc., Me tert-Bu ether, and o-xylene by means of fixed-bed catalytic partial oxidation in a shell-and-tube reactor which includes a reaction zone for producing unsatd. aldehydes as a main product, the reaction zone having an inactive material layer inserted into a position where a hot spot is to be generated in a reaction tube. A fixed-bed, shell-and-tube reactor for use in the above method is also described. At least one layer of the inactive material is packed at the point of a hot spot to control the hot spot temperature efficiently, thereby increasing the lifetime of a catalyst and producing unsatd. aldehydes and unsatd. fatty acids in both high yield and selectivity.
IT 79-10-7P, Acrylic acid, preparation
RL: IMF (Industrial manufacture); **PREP (Preparation)**

(catalytic partial oxidation method for producing unsatd. aldehydes and/or unsatd. fatty acids)
RN 79-10-7 HCAPLUS
CN 2-Propenoic acid (CA INDEX NAME)



IT 115-07-1, Propene, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(catalytic partial oxidation method for producing unsatd. aldehydes and/or unsatd. fatty acids from)
RN 115-07-1 HCAPLUS
CN 1-Propene (CA INDEX NAME)



REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L85 ANSWER 2 OF 35 HCAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 2
ACCESSION NUMBER: 2000:227365 HCAPLUS Full-text
DOCUMENT NUMBER: 132:237519
TITLE: Single reactor process for preparing acrylic acid using an increased amount of propylene and having increased production capacity
INVENTOR(S): Elder, James Edward; Lonzetta, Charles Michael; Hale, Timothy Allen; Sornson, John Dempster; Klugherz, Peter David; Kaminski, Thomas Albert; Ebert, Donald Alan
PATENT ASSIGNEE(S): Rohm and Haas Company, USA
SOURCE: Eur. Pat. Appl., 18 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 990636	A1	20000405	EP 1999-301356	19990224 <--
EP 990636	B1	20030903		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
US 6384274	B1	20020507	US 1999-244182	19990204 <--
MX 9901856	A	20050715	MX 1999-1856	19990225 <--
TW 239328	B	20050911	TW 1999-88102944	19990226 <--
BR 9900847	A	20000509	BR 1999-847	19990302 <--
KR 2000022591	A	20000425	KR 1999-7699	19990309 <--
CN 1249300	A	20000405	CN 1999-104024	19990317 <--
JP 2000103761	A	20000411	JP 1999-162225	19990609 <--
PRIORITY APPLN. INFO.:			US 1998-102219P P	19980929 <--

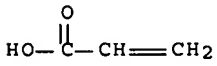
ED Entered STN: 07 Apr 2000

AB Acrylic acid is prepared in high yield and selectivity by the vapor-phase oxidation of propylene using a single reactor in a process comprising: (A) feeding a reactant composition comprising (1) >7 volume% propylene, (2) oxygen, (3) water vapor, and (4) the remainder comprising an inert gas, into a a reactor having a plurality of contact tubes and containing ≥1 oxidation catalyst in a shell, where one side of the reactor shell is divided into 1st and 2nd heat-transfer zones through which a heat-transfer medium passes and each contact tube contains ≥2 oxidation reaction zones; and (B) contacting the reactant composition with the 2 or more reaction zones to form a mixed product gas comprising acrylic acid. A reactor diagram and process flow diagram are presented.

IT 79-10-7P, Acrylic acid, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(single reactor process for preparing acrylic acid using an increased amount
of propylene and having increased production capacity)

RN 79-10-7 HCAPLUS

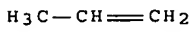
CN 2-Propenoic acid (CA INDEX NAME)



IT 115-07-1, Propene, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(single reactor process for preparing acrylic acid using an increased amount
of propylene and having increased production capacity)

RN 115-07-1 HCAPLUS

CN 1-Propene (CA INDEX NAME)



REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L85 ANSWER 3 OF 35 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2005:612226 HCAPLUS Full-text

DOCUMENT NUMBER: 143:115901

TITLE: Catalytic partial oxidation method for producing unsaturated aldehydes and/or unsaturated fatty acids

INVENTOR(S): Shin, Hyun-Jong; Yoo, Yeon-Shick; Choi, Byung-Yul; Choi, Young-Hyun; Cho, Young-Jin; Kim, Duk-Ki; Park, Joo-Yeon; Park, Kwang-Ho

PATENT ASSIGNEE(S): LG Chem, Ltd., S. Korea

SOURCE: PCT Int. Appl., 36 pp.
CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005063674	A1	20050714	WO 2004-KR3432	20041224 <--
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
US 2005209485	A1	20050922	US 2004-21628	20041223 <--
KR 2005067069	A	20050630	KR 2004-112106	20041224 <--
EP 1697295	A1	20060906	EP 2004-808561	20041224 <--
R: DE, FR				
CN 1874984	A	20061206	CN 2004-80031774	20041224 <--
JP 2007508372	T	20070405	JP 2006-535280	20041224 <--
IN 2006KN00736	A	20070803	IN 2006-KN736	20060328 <--
PRIORITY APPLN. INFO.:			KR 2003-97864 A	20031226 <--
			KR 2003-97863 A	20031226 <--
			WO 2004-KR3432 W	20041224

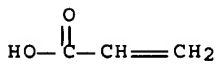
ED Entered STN: 15 Jul 2005

AB A method is described for producing unsatd. aldehydes (e.g., acrolein) or unsatd. fatty acids (e.g., acrylic acid) from at least one compound selected from propylene, propane, (meth)acrolein, isobutylene, tert-Bu alc., Me tert-Bu ether, and o-xylene by means of fixed-bed catalytic partial oxidation in a shell-and-tube reactor which includes a reaction zone for producing unsatd. aldehydes as a main product, the reaction zone having an inactive material layer inserted into a position where a hot spot is to be generated in a reaction tube. A fixed-bed, shell-and-tube reactor for use in the above method is also described. At least one layer of the inactive material is packed at the point of a hot spot to control the hot spot temperature efficiently, thereby increasing the lifetime of a catalyst and producing unsatd. aldehydes and unsatd. fatty acids in both high yield and selectivity.

IT 79-10-7P, 2-Propenoic acid, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(catalytic partial oxidation method for producing unsatd. aldehydes and/or unsatd. fatty acids)

RN 79-10-7 HCAPLUS

CN 2-Propenoic acid (CA INDEX NAME)



IT 115-07-1, 1-Propene, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(catalytic partial oxidation method for producing unsatd. aldehydes and/or unsatd. fatty acids from)

RN 115-07-1 HCAPLUS

CN 1-Propene (CA INDEX NAME)

$H_3C-CH=CH_2$

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L85 ANSWER 4 OF 35 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2005:185464 HCAPLUS Full-text
DOCUMENT NUMBER: 142:280543
TITLE: Method for producing unsaturated aldehydes and unsaturated carboxylic acids from alkenes in a fixed-bed catalytic partial-oxidation reactor with an enhanced heat-control system
INVENTOR(S): Ha, Kyoung Su; Kim, Geon Yong; Kang, Seong Pil; Choi, Seok Hwan; Woo, Boo Gon
PATENT ASSIGNEE(S): Lg Chem, Ltd., S. Korea
SOURCE: U.S. Pat. Appl. Publ., 16 pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2005049435	A1	20050303	US 2004-931034	20040901 <--
US 7238836	B2	20070703		
KR 2005024206	A	20050310	KR 2004-69117	20040831 <--
WO 2005021149	A1	20050310	WO 2004-KR2193	20040901 <--
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RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
EP 1660226	A1	20060531	EP 2004-774454	20040901 <--
R: DE, FR				
CN 1845785	A	20061011	CN 2004-80025024	20040901 <--
JP 2007533605	T	20071122	JP 2006-523141	20040901 <--
IN 2006KN00384	A	20070803	IN 2006-KN384	20060221 <--
PRIORITY APPLN. INFO.:			KR 2003-60736 A	20030901 <--
			WO 2004-KR2193 W	20040901

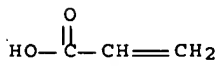
ED Entered STN: 04 Mar 2005

AB A process is described for producing unsatd. aldehydes (e.g., acrolein) and unsatd. carboxylic acids (e.g., acrylic acid) from olefins (e.g., propylene) by fixed-bed catalytic partial oxidation in a shell-and-tube, heat-exchanger-type reactor. In this process, the reactor comprises a first-step reaction zone of mainly producing the unsatd. aldehydes, a second-step reaction zone of mainly producing the unsatd. acids, or both the two zones. The first-step reaction zone is divided into two or more zones by a partition. Each of the divided shell spaces is filled with a heat-transfer medium, and the heat-transfer medium in each shell space is maintained at isothermal temperature or a temperature difference of 0-5° and the temps. of the heat-transfer media in

each of the divided shell spaces are set to increase in the moving direction of reactants. In order to facilitate the removal of heat generation at a location where the partition is placed, a reaction inhibition layer is disposed in the first-step reaction zone. Also, in order to protect the catalyst layer from a highly exothermic reaction, the process is performed at a limited temperature difference between the temperature in a hot spot and the temperature of a molten salt. If this improved heat-control system is used, the heat stability of the catalyst layer will be secured and the yields of intermediate and final products can be increased.

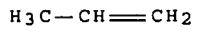
IT 79-10-7P, Acrylic acid, preparation
RL: EPR (Engineering process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PYP (Physical process); PREP (Preparation); PROC (Process)
(method for producing unsatd. aldehydes and unsatd. carboxylic acids from alkenes in a fixed-bed catalytic partial-oxidation reactor with an enhanced heat-control system)

RN 79-10-7 HCAPLUS
CN 2-Propenoic acid (CA INDEX NAME)



IT 115-07-1, Propene, reactions
RL: EPR (Engineering process); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(method for producing unsatd. aldehydes and unsatd. carboxylic acids from alkenes in a fixed-bed catalytic partial-oxidation reactor with an enhanced heat-control system)

RN 115-07-1 HCAPLUS
CN 1-Propene (CA INDEX NAME)



REFERENCE COUNT: 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L85 ANSWER 5 OF 35 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2004:633569 HCAPLUS Full-text
DOCUMENT NUMBER: 141:159052
TITLE: Thermally diluted exothermic reactor system
INVENTOR(S): Hagen, David L.; Ginter, Gary; Goheen, Bill; McGuire, Allan; Rankin, Janet
PATENT ASSIGNEE(S): Vast Power Systems Inc., USA
SOURCE: PCT Int. Appl., 308 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE

WO 2004064990	A2	20040805	WO 2004-US1749		20040122	<--
WO 2004064990	A3	20041229				
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI						
CA 2513982	A1	20040805	CA 2004-2513982		20040122	<--
WO 2004065763	A2	20040805	WO 2004-US1545		20040122	<--
WO 2004065763	A3	20050728				
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW						
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG						
US 2004219079	A1	20041104	US 2004-763047		20040122	<--
EP 1587613	A2	20051026	EP 2004-704459		20040122	<--
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK						
CN 1764498	A	20060426	CN 2004-80007774		20040122	<--
JP 2006515912	T	20060608	JP 2006-501071		20040122	<--
JP 2006523294	T	20061012	JP 2006-501103		20040122	<--
IN 2005DN02976	A	20070803	IN 2005-DN2976		20050704	<--
PRIORITY APPLN. INFO.:			US 2003-442096P	P	20030122	<--
			US 2003-442844P	P	20030124	<--
			WO 2004-US1545	W	20040122	
			WO 2004-US1749	W	20040122	

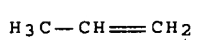
ED Entered STN: 06 Aug 2004

AB A thermally diluted exothermic reactor system is described comprising numerous orifices distributed in a combustor using distributed perforated contactor tubes or ducts. Diluent fluid and ≥1 reactant fluids are delivered and mixed with an oxidant fluid using the perforated contactors. Reactant fluid, oxidant fluid and diluent fluid are delivered and mixed under composition control using numerous micro-jets about the perforated tubes. Composition profiles, composition ratio profiles and temperature profiles are controlled using the reactor in ≥1 axial direction and one or two transverse directions with temperature gradient reduction, power and efficiency improvement, and emissions control.

IT 115-07-1, Propylene, processes
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(thermally diluted exothermic reactor system)

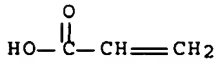
RN 115-07-1 HCAPLUS

CN 1-Propene (CA INDEX NAME)



IT 79-10-7P, Acrylic acid, processes
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); PROC (Process); RACT (Reactant or reagent)

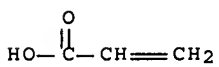
(thermally diluted exothermic reactor system)
RN 79-10-7 HCAPLUS
CN 2-Propenoic acid (CA INDEX NAME)



L85 ANSWER 6 OF 35 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2004:720153 HCAPLUS Full-text
DOCUMENT NUMBER: 141:225989
TITLE: Continuous manufacture of acrylic acid by vapor-phase catalytic oxidation of acrolein with oxygen in immobilized bed multiple-tube reactors
INVENTOR(S): Yuki, Hiroki; Tanimoto, Michio
PATENT ASSIGNEE(S): Nippon Shokubai Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 15 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

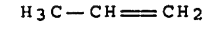
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004244383	A	20040902	JP 2003-36891	20030214 <--
PRIORITY APPLN. INFO.:			JP 2003-36891	20030214 <--

ED Entered STN: 03 Sep 2004
AB In the manufacture, porous granular catalysts comprising Mo V oxides and/or their mixed oxides are placed on plural reaction sections divided in the axial direction of the tubes. Porous size of the catalysts are different between ≥2 of the sections. Thus, acrylic acid was manufactured with selectivity 93.8% and conversion of acrolein 99.1% by the aforementioned process using Mo V W Cu oxide for 4000 h.
IT 79-10-7P, Acrylic acid, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(continuous manufacture of acrylic acid by vapor-phase catalytic oxidation of
acrolein with oxygen in the presence of Mo V oxides in immobilized bed multiple-tube reactors)
RN 79-10-7 HCAPLUS
CN 2-Propenoic acid (CA INDEX NAME)



IT 115-07-1, Propylene, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(continuous manufacture of acrylic acid by vapor-phase catalytic oxidation of
acrolein with oxygen in the presence of Mo V oxides in immobilized bed

multiple-tube reactors)
RN 115-07-1 HCAPLUS
CN 1-Propene (CA INDEX NAME)



L85 ANSWER 7 OF 35 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:551479 HCAPLUS Full-text
DOCUMENT NUMBER: 139:100865
TITLE: Method for vapor phase catalytic oxidation
INVENTOR(S): Yada, Shuhei; Goriki, Masayasu; Hosaka, Hirochika; Jinno, Kimikatsu; Saito, Teruo; Suzuki, Yoshiro
PATENT ASSIGNEE(S): Mitsubishi Chemical Corporation, Japan
SOURCE: PCT Int. Appl., 60 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

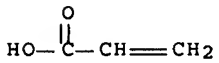
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003057653	A1	20030717	WO 2002-JP13372	20021220 <--
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
JP 2003206244	A	20030722	JP 2002-4635	20020111 <--
JP 2003252807	A	20030910	JP 2002-364643	20021217 <--
AU 2002357503	A1	20030724	AU 2002-357503	20021220 <--
EP 1466883	A1	20041013	EP 2002-806067	20021220 <--
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK				
BR 2002014991	A	20041214	BR 2002-14991	20021220 <--
CN 1607030	A	20050420	CN 2004-10078599	20021220 <--
CN 1607031	A	20050420	CN 2004-10078600	20021220 <--
CN 1607032	A	20050420	CN 2004-10078601	20021220 <--
CN 1617843	A	20050518	CN 2002-827630	20021220 <--
RU 2309936	C2	20071110	RU 2004-123098	20021220 <--
IN 2004CN01622	A	20060224	IN 2004-CN1622	20040722 <--
PRIORITY APPLN. INFO.:			JP 2001-399118 A	20011228 <--
			JP 2002-4635 A	20020111 <--
			WO 2002-JP13372 W	20021220 <--

OTHER SOURCE(S): CASREACT 139:100865
ED Entered STN: 18 Jul 2003
AB Disclosed is a method for vapor phase catalytic oxidation involving using a fixed bed multi-tube heat-exchanger type reactor having a plurality of reaction tubes, feeding a raw material gas for reaction to the inside of the reaction tube packed with a catalyst to produce a reaction product gas,

characterized in that the pressure loss of each reaction tube having a catalyst packed therein is adjusted in a manner wherein a reaction tube showing a pressure loss less than an average pressure loss for the total reaction tubes is addnl. packed with an inert material in its portion near the entrance of a raw material gas, or is removed of the catalyst and re-packed with the catalyst, and a reaction tube showing a pressure loss greater than the above average value is removed of the catalyst and then re-packed with the catalyst, so as for the each reaction tube to show a pressure loss within the range of ±20% of the average value. The method can provide a vapor phase catalytic oxidation method which is almost free of variations in the reaction states in resp. reaction tubes. (meth)acrolein or (meth)acrylic acid are prepared by oxidation of propane, propylene, or isobutylene in the presence of a Mo-Bi series catalyst using the above process.

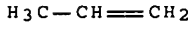
IT 79-10-7P, Acrylic acid, preparation
RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)
(control of pressure loss in reaction tubes for vapor phase catalytic oxidation of propane, propylene, or isobutylene to (meth)acrolein or (meth)acrylic acid in presence of a Mo-Bi series catalyst)

RN 79-10-7 HCAPLUS
CN 2-Propenoic acid (CA INDEX NAME)



IT 115-07-1, Propylene, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(control of pressure loss in reaction tubes for vapor phase catalytic oxidation of propane, propylene, or isobutylene to (meth)acrolein or (meth)acrylic acid in presence of a Mo-Bi series catalyst)

RN 115-07-1 HCAPLUS
CN 1-Propene (CA INDEX NAME)



REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L85 ANSWER 8 OF 35 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:754852 HCAPLUS Full-text
DOCUMENT NUMBER: 139:261657
TITLE: Combined method for producing acrylic acid and acrylic acid homopolymer
INVENTOR(S): Matsumoto, Yukihiro; Nakahara, Sei; Ishizaki, Kunihiko
PATENT ASSIGNEE(S): Nippon Shokubai Co., Ltd., Japan
SOURCE: Eur. Pat. Appl., 17 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

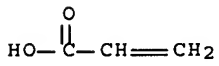
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1346974	A2	20030924	EP 2003-447057	20030320 <--
EP 1346974	A3	20031105		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
JP 2003268011	A	20030925	JP 2002-78678	20020320 <--
JP 3905781	B2	20070418		
TW 276624	B	20070321	TW 2003-92103789	20030224 <--
ZA 2003001591	A	20030905	ZA 2003-1591	20030226 <--
US 2003181621	A1	20030925	US 2003-375140	20030228 <--
US 7038081	B2	20060502		
CN 1445250	A	20031001	CN 2003-121615	20030318 <--
BR 2003000726	A	20050607	BR 2003-726	20030320 <--
PRIORITY APPLN. INFO.:			JP 2002-78678 A	20020320 <--

ED Entered STN: 26 Sep 2003

AB A method for producing polyacrylic acid includes a combined process of an acrylic acid production process and a polyacrylic acid production process. The acrylic acid production process includes the steps of catalytically oxidizing propylene and/or propane in a gaseous phase to generate an acrylic acid reaction product, absorbing the reaction product in a solvent, and purifying acrylic acid from an acrylic acid aqueous solution containing the solvent. The polyacrylic acid production process includes the step of utilizing heat medium recovered in the acrylic acid production process to purify polyacrylic acid from the acrylic acid aqueous solution or from acrylic acid. Process flow diagrams are presented.

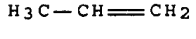
IT **79-10-7P**, Acrylic acid, preparation
RL: EPR (Engineering process); IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PUR (Purification or recovery); RCT (Reactant); **PREP (Preparation)**; PROC (Process); RACT (Reactant or reagent)
(combined method for producing acrylic acid and acrylic acid homopolymer)

RN 79-10-7 HCAPLUS
CN 2-Propenoic acid (CA INDEX NAME)



IT **115-07-1**, Propene, reactions
RL: EPR (Engineering process); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(producing acrylic acid by the oxidation of)

RN 115-07-1 HCAPLUS
CN 1-Propene (CA INDEX NAME)

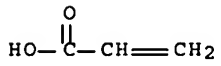


L85 ANSWER 9 OF 35 HCAPLUS COPYRIGHT 2007 ACS on STN

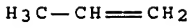
ACCESSION NUMBER: 2001:918875 HCAPLUS Full-text
DOCUMENT NUMBER: 136:38028
TITLE: Process and reactor for producing acrylic acid by the gas-phase catalytic oxidation of acrolein with the inhibition of reactor hot spot formation
INVENTOR(S): Yunoki, Hiromi
PATENT ASSIGNEE(S): Nippon Shokubai Co., Ltd., Japan
SOURCE: Eur. Pat. Appl., 11 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1164120	A2	20011219	EP 2001-305119	20010612 <--
EP 1164120	A3	20030205		
EP 1164120	B1	20050504		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 2001354612	A	20011225	JP 2000-175043	20000612 <--
CN 1328988	A	20020102	CN 2001-121191	20010612 <--
BR 2001002347	A	20020402	BR 2001-2347	20010612 <--
US 2003060659	A1	20030327	US 2001-878421	20010612 <--
US 6657080	B2	20031202		

PRIORITY APPLN. INFO.: JP 2000-175043 A 20000612 <--
ED Entered STN: 21 Dec 2001
AB A process for producing acrylic acid comprising the vapor-phase catalytic oxidation of an acrolein-containing gas is described using a shell-and-tube type fixed-bed reactor, where each of the reaction tubes contains catalyst in three or more reaction zones in the axial direction. The catalyst in the first reaction zone closest to the gas inlet has a higher activity than that of the catalyst in the adjacent, second reaction zone and the catalysts in each of the subsequent reaction zones have an activity level higher than that of the catalyst in the adjacent reaction zone on the gas-inlet side, thus inhibiting the formation of reactor hot spots.
IT **79-10-7P**, Acrylic acid, preparation
RL: IMF (Industrial manufacture); **PREP** (Preparation)
(process and reactor for producing acrylic acid by the gas-phase catalytic oxidation of acrolein with the inhibition of reactor hot spot formation)
RN 79-10-7 HCAPLUS
CN 2-Propenoic acid (CA INDEX NAME)



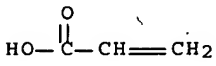
IT 115-07-1, Propene, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(process and reactor for producing acrylic acid by the gas-phase catalytic oxidation of acrolein with the inhibition of reactor hot spot formation)
RN 115-07-1 HCAPLUS
CN 1-Propene (CA INDEX NAME)



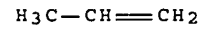
L85 ANSWER 10 OF 35 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2001:338104 HCAPLUS Full-text
DOCUMENT NUMBER: 134:326889
TITLE: Oxidative method and apparatus for the production of acrylic acid or acrolein from propylene and propane
INVENTOR(S): Okazaki, Kazuto; Matsumoto, Yukihiro; Sakamoto, Kazuhiko; Dodo, Osamu
PATENT ASSIGNEE(S): Nippon Shokubai Co., Ltd., Japan
SOURCE: Eur. Pat. Appl., 16 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1097916	A2	20010509	EP 2000-309634	20001101 <--
EP 1097916	A3	20020417		
EP 1097916	B1	20050504		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 2001131109	A	20010515	JP 1999-315914	19991105 <--
JP 3934293	B2	20070620		
ZA 2000006161	A	20010517	ZA 2000-6161	20001031 <--
US 7198766	B1	20070403	US 2000-705661	20001103 <--
CN 1299805	A	20010620	CN 2000-136621	20001105 <--
US 2007066845	A1	20070322	US 2006-601417	20061117 <--
PRIORITY APPLN. INFO.:			JP 1999-315914 A	19991105 <--
			US 2000-705661 A3	20001103 <--

ED Entered STN: 11 May 2001
AB Chilled coolant is prepared by using liquid coolant in the gasification of liquefied propylene, and this chilled coolant is used in heat exchangers for cooling acrylic acid or acrolein produced. This method allows effective utilization of the latent heat which used to be discarded and permits a reduction of energy consumption of cooling required sep. in the production step. Recovering the chilled coolant makes it possible to stabilize the gasification of propylene and/or propane, and consequently to stabilize the production of acrylic acid. Process flow diagrams are presented.
IT 79-10-7P, Acrylic acid, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(oxidative method and apparatus for the production of acrylic acid or acrolein
from propylene and propane)
RN 79-10-7 HCAPLUS
CN 2-Propenoic acid (CA INDEX NAME)



IT 115-07-1, Propene, reactions
RL: PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(oxidative method and apparatus for the production of acrylic acid or acrolein
from propylene and propane)
RN 115-07-1 HCAPLUS
CN 1-Propene (CA INDEX NAME)

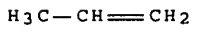


L85 ANSWER 11 OF 35 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2001:338081 HCAPLUS Full-text
DOCUMENT NUMBER: 134:312911
TITLE: Reactor for catalytic gas phase oxidation and method for manufacture of (meth)acrylic acid
INVENTOR(S): Nishimura, Takeshi; Mori, Masakatsu; Kitaura, Masatsugu; Dodo, Osamu; Tanimoto, Michio
PATENT ASSIGNEE(S): Nippon Shokubai Co., Ltd., Japan
SOURCE: Eur. Pat. Appl., 16 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

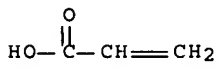
PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
EP 1097745	A1	20010509	EP 2000-309633		20001101 <--
EP 1097745	B1	20050216			
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO					
JP 2001129384	A	20010515	JP 1999-315469		19991105 <--
JP 3646027	B2	20050511			
ZA 2000005988	A	20010518	ZA 2000-5988		20001025 <--
CN 1294939	A	20010516	CN 2000-132352		20001103 <--
CN 1096879	B	20021225			
US 6994833	B1	20060207	US 2000-705679		20001103 <--
PRIORITY APPLN. INFO.:			JP 1999-315469	A	19991105 <--

ED Entered STN: 11 May 2001
AB In a shell-and-tube type reactor, the leakage between the upper and lower chambers is substantially decreased by tightly fitting the reaction tubes to the shield. The present invention provides a reactor for use in catalytic gas phase oxidation characterized by expanding reaction tubes to at least one groove formed in the reaction tube-fixing part of an intermediate tube sheet to form a shield, thereby forming plural of chambers with the intermediate tube sheet, and forming an expansion joint around the periphery of each of the chambers.
IT 115-07-1P, Propylene, uses
RL: CAT (Catalyst use); PNU (Preparation, unclassified); PREP (Preparation); USES (Uses)
(reactor for catalytic gas phase oxidation and method for manufacture of (meth)acrylic acid)
RN 115-07-1 HCAPLUS

CN 1-Propene (CA INDEX NAME)



IT 79-10-7P, Acrylic acid, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(reactor for catalytic gas phase oxidation and method for manufacture of (meth)acrylic acid)
RN 79-10-7 HCAPLUS
CN 2-Propenoic acid (CA INDEX NAME)



REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

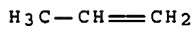
L85 ANSWER 12 OF 35 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2001:165853 HCAPLUS Full-text
DOCUMENT NUMBER: 134:210060
TITLE: Catalytic gas-phase oxidation in a shell-and-tube reactor
INVENTOR(S): Nishimura, Takeshi; Mori, Masakatsu; Kitaura, Masatsugu; Dodo, Osamo; Nakamura, Daisuke
PATENT ASSIGNEE(S): Nippon Shokubai Co., Ltd., Japan
SOURCE: Eur. Pat. Appl., 23 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1080781	A1	20010307	EP 2000-307312	20000824 <--
EP 1080781	B1	20060322		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
ZA 2000004211	A	20010214	ZA 2000-4211	20000817 <--
US 6613940	B1	20030902	US 2000-648950	20000825 <--
JP 2001139499	A	20010522	JP 2000-257557	20000828 <--
JP 3895527	B2	20070322		
BR 2000003855	A	20010403	BR 2000-3855	20000829 <--
CN 1289635	A	20010404	CN 2000-131724	20000831 <--
CN 1096878	B	20021225		

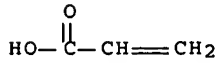
PRIORITY APPLN. INFO.: JP 1999-246056 A 19990831 <--
ED Entered STN: 09 Mar 2001
AB Catalytic gas-phase oxidation is carried out in a shell-and-tube type reactor adapted to circulate a heating medium to the shell of the reactor through the medium of a circulation device connecting an annular conduit. A portion of the heating medium extracted from the shell of the reactor is subjected to heat exchange by introducing the heating medium resulting from the heat

exchange into the proximity of a heating medium circulation inlet on the inlet side of the circulation device or the annular conduit on the outlet side of the reactor. The flow rate of the heating medium after the heat exchange is preferably in the range of 2-40 volume% based on the flow rate of the heating medium within the shell of the reactor and the temperature difference of the heating medium at the inlet and the outlet in the range of 15-150°. The arrangement decreases evenly the hot spots in the reaction tubes, increases the yield of the resulting product, and implements a reaction of catalytic gas phase oxidation of propylene or isobutylene.

IT 115-07-1, Propylene, processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(catalytic gas-phase oxidation in shell-and-tube reactor)
RN 115-07-1 HCAPLUS
CN 1-Propene (CA INDEX NAME)



IT 79-10-7P, Acrylic acid, processes
RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); PREP (Preparation); PROC (Process)
(manufactured by catalytic gas-phase oxidation in shell-and-tube reactor)
RN 79-10-7 HCAPLUS
CN 2-Propenoic acid (CA INDEX NAME)



REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L85 ANSWER 13 OF 35 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2001:165852 HCAPLUS Full-text
DOCUMENT NUMBER: 134:194944
TITLE: Reactor for catalytic gas phase oxidation
INVENTOR(S): Matsumoto, Yukihiro; Mori, Masakatsu; Kitaura, Masatsugu; Dodo, Osamu; Tanimoto, Michio
PATENT ASSIGNEE(S): Nippon Shokubai Co., Ltd., Japan
SOURCE: Eur. Pat. Appl., 37 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1080780	A1	20010307	EP 2000-307311	20000824 <--
EP 1080780	B1	20070801		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
ZA 2000004210	A	20010214	ZA 2000-4210	20000816 <--

BR 2000003856	A	20010403	BR 2000-3856		20000829 <--
US 6808689	B1	20041026	US 2000-652209		20000830 <--
CN 1289634	A	20010404	CN 2000-131309		20000831 <--
CN 1096877	B	20021225			
JP 2001137688	A	20010522	JP 2000-264570		20000831 <--
JP 2001137689	A	20010522	JP 2000-264571		20000831 <--
JP 3732080	B2	20060105			
PRIORITY APPLN. INFO.:			JP 1999-246057	A	19990831 <--
			JP 1999-246058	A	19990831 <--

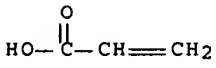
ED Entered STN: 09 Mar 2001

AB The temperature distribution of a heating medium in the reactor is allayed and the occurrence of hot spots is repressed. In a shell-and-tube type reactor provided with donut type and disk type baffle plates, reaction tubes are disposed even in the holes formed in the donut type baffle plates and an empty space devoid of a configuration of the reaction tubes is formed at the center of the shell. According to this invention, (meth)acrylic acid and/or (meth)acrolein can be produced at a low energy by catalytic gas phase oxidation of propylene- or isobutylene-containing gas.

IT 79-10-7P, Acrylic acid, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(reactor for catalytic gas phase oxidation)

RN 79-10-7 HCAPLUS

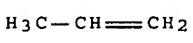
CN 2-Propenoic acid (CA INDEX NAME)



IT 115-07-1, Propylene, processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(reactor for catalytic gas phase oxidation)

RN 115-07-1 HCAPLUS

CN 1-Propene (CA INDEX NAME)



REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L85 ANSWER 14 OF 35 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1999:529071 HCAPLUS Full-text

DOCUMENT NUMBER: 131:170747

TITLE: Metallic reactor tube with catalytic interior coating for gas-phase production of (meth)acrolein and (meth)acrylic acid

INVENTOR(S): Unverricht, Signe; Arnold, Heiko; Tenten, Andreas; Machhammer, Otto; Zehner, Peter

PATENT ASSIGNEE(S): BASF AG, Germany

SOURCE: PCT Int. Appl., 25 pp.
CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

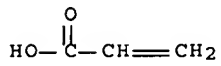
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9941011	A1	19990819	WO 1999-EP901	19990211 <--
W: AL, AU, BG, BR, BY, CA, CN, CZ, GE, HU, ID, IL, JP, KR, KZ, LT, LV, MX, NO, NZ, PL, RO, RU, SG, SI, SK, TR, UA, US, AM, AZ, KG, MD, TJ, TM				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
DE 19805719	A1	19990819	DE 1998-19805719	19980212 <--
DE 19839782	A1	20000302	DE 1998-19839782	19980901 <--
AU 9930275	A	19990830	AU 1999-30275	19990211 <--
MX 2000PA06672	A	20010219	MX 2000-PA6672	20000706 <--
PRIORITY APPLN. INFO.:			DE 1998-19805719 A	19980212 <--
			DE 1998-19839782 A	19980901 <--
			WO 1999-EP901 W	19990211 <--

ED Entered STN: 24 Aug 1999

AB The invention relates to a metallic reactor tube with catalytic coating and to a tube bundle reactor with coated reactor tubes. The coating contains a multi-metal oxide composition containing Mo and Bi which is applied directly onto the reactor tubes, especially the inner wall(s) of said reactor tubes. These reactor tubes or tube bundle reactors exhibit decreased hot spots during reactions and are especially suited for use in the production of (meth)acrolein and/or (meth)acrylic acid by catalytic gas phase oxidation

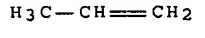
IT 79-10-7P, Acrylic acid, preparation
RL: IMF (Industrial manufacture); **PREP (Preparation)**
(metallic reactor tube with catalytic interior coating for gas-phase production of (meth)acrolein and (meth)acrylic acid)

RN 79-10-7 HCAPLUS
CN 2-Propenoic acid (CA INDEX NAME)



IT 115-07-1, Propene, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(metallic reactor tube with catalytic interior coating for gas-phase production of (meth)acrolein and (meth)acrylic acid)

RN 115-07-1 HCAPLUS
CN 1-Propene (CA INDEX NAME)



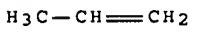
REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L85 ANSWER 15 OF 35 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1999:201937 HCAPLUS Full-text
DOCUMENT NUMBER: 130:267861
TITLE: Method and apparatus for manufacture of unsaturated aldehydes and carboxylic acids by gas-phase oxidation

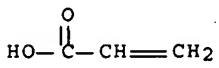
INVENTOR(S): Yamaguchi, Keiichi; Kaneko, Toshiaki
PATENT ASSIGNEE(S): Toa Gosei Chemical Industry Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 11080052	A	19990323	JP 1997-256093	19970904 <--
JP 3463529	B2	20031105		

PRIORITY APPLN. INFO.: JP 1997-256093 19970904 <--
ED Entered STN: 30 Mar 1999
AB The method, giving products with high yield, comprises using a multi-tubular heat exchanger reactor having a catalyst-filled part equipped with a heat-resistant rod located in the center of the axis of the reactor. Oxidation of propylene to acrolein and acrylic acid was exemplified.
IT 115-07-1, Propylene, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(method and apparatus for manufacture of acrolein by gas-phase oxidation of propylene)
RN 115-07-1 HCAPLUS
CN 1-Propene (CA INDEX NAME)



IT 79-10-7P, Acrylic acid, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(method and apparatus for manufacture of acrylic acid by gas-phase oxidation of acrolein)
RN 79-10-7 HCAPLUS
CN 2-Propenoic acid (CA INDEX NAME)



L85 ANSWER 16 OF 35 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1999:279723 HCAPLUS Full-text
DOCUMENT NUMBER: 130:282481
TITLE: Two-step oxidation reactor and catalysts for the production of acrylic acid from propylene
INVENTOR(S): Tanimoto, Michio; Uekawa, Kazuyuki; Kawajiri, Tatsuya
PATENT ASSIGNEE(S): Nippon Shokubai Co., Ltd., Japan
SOURCE: Eur. Pat. Appl., 15 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 911313	A1	19990428	EP 1998-308754	19981027 <--
EP 911313	B1	20010926		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 11130722	A	19990518	JP 1997-293756	19971027 <--
JP 3948798	B2	20070725		
BR 9804243	A	20000411	BR 1998-4243	19981026 <--
MX 9808885	A	20000731	MX 1998-8885	19981026 <--
CN 1215718	A	19990505	CN 1998-123609	19981027 <--
CN 1093117	B	20021023		
SG 70657	A1	20000222	SG 1998-4291	19981027 <--
US 6069271	A	20000530	US 1998-178737	19981027 <--
TW 460455	B	20011021	TW 1998-87117799	19981027 <--
IN 1998MA02439	A	20060623	IN 1998-MA2439	19981029 <--

PRIORITY APPLN. INFO.: JP 1997-293756 A 19971027 <--

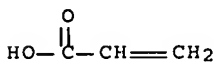
ED Entered STN: 06 May 1999

AB A method for producing acrylic acid from propylene at high efficiency by a two-stage catalytic oxidation using a single fixed bed shell-and-tube heat exchanger-type reactor is described. The shell space of the reactor is divided into an upper space and lower space by a partition plate, allowing a heating medium to circulate independently in each of the spaces, and carrying out the vapor-phase oxidation under specific conditions which include providing a first-stage catalyst layer in a lower portion of each of the reaction tubes, a second-stage catalyst layer in an upper portion of each of the reaction tubes, and an inert substance layer between the lower and upper sections, and making the void ratio of the inert substance layer from 40-99.5%. The propylene is first oxidized to acrolein by the first catalyst layer and then to acrylic acid with the second catalyst layer; reactor schematics are presented.

IT 79-10-7P, Acrylic acid, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(two-step oxidation reactor and catalysts for the production of acrylic acid
from propylene)

RN 79-10-7 HCAPLUS

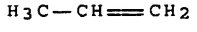
CN 2-Propenoic acid (CA INDEX NAME)



IT 115-07-1, Propene, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(two-step oxidation reactor and catalysts for the production of acrylic acid
from propylene)

RN 115-07-1 HCAPLUS

CN 1-Propene (CA INDEX NAME)

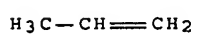


REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

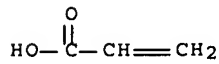
L85 ANSWER 17 OF 35 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1993:604082 HCAPLUS Full-text
DOCUMENT NUMBER: 119:204082
TITLE: Apparatus for preparation of unsaturated aldehydes and unsaturated carboxylic acids
INVENTOR(S): Tazaki, Hiroyuki; Kurimoto, Ikuo; Uhara, Hiroyuki; Aoki, Yukio
PATENT ASSIGNEE(S): Nippon Catalytic Chem Ind, Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 05125010	A	19930521	JP 1991-285127	19911030 <--
PRIORITY APPLN. INFO.:			JP 1991-285127	19911030 <--

ED Entered STN: 13 Nov 1993
AB The title cylindrical apparatus comprises catalyst-containing tubes and tubular heat exchangers which are placed in parallel in the apparatus; inlets of starting materials, located at upper portion of the apparatus; and outlets of products, located at the bottom portion of the apparatus, wherein the volume of bottom portion is smaller than that of the upper portion. The apparatus is useful for oxidation of propylene and isobutylene to acrolein, and methacrolein, resp., which can be further oxidized to (meth)acrylic acid with reduced amts. of diketone byproducts. Diagrams of the apparatus are illustrated.
IT 115-07-1, Propylene, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(oxidation of, to acrolein and acrylic acid, apparatus for)
RN 115-07-1 HCAPLUS
CN 1-Propene (CA INDEX NAME)



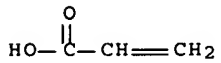
IT 79-10-7P, Acrylic acid, preparation
RL: PREP (Preparation)
(preparation of, by oxidation of acrolein, apparatus for)
RN 79-10-7 HCAPLUS
CN 2-Propenoic acid (CA INDEX NAME)



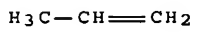
L85 ANSWER 18 OF 35 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1984:407787 HCAPLUS Full-text
DOCUMENT NUMBER: 101:7787
TITLE: Unsaturated aldehyde or carboxylic acid
PATENT ASSIGNEE(S): Mitsubishi Petrochemical Co., Ltd., Japan; JGC Corp.
SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 59029629	A	19840216	JP 1982-137988	19820810 <--
JP 03045056	B	19910709		

PRIORITY APPLN. INFO.: JP 1982-137988 19820810 <--
ED Entered STN: 07 Jul 1984
AB In the reaction of a >C3 olefin with a gas containing mol. O and steam, the gas product is cooled and/or absorbed in water to give a high-temperature condensate, and the water for moisturizing is heat- exchanged with the high-temperature condensate and used to moisturize the O-containing gas supplied to the reaction system. Thus, acrylic acid (I) [79-10-7] was prepared by contacting 12.1 kg/h water with 31.5 Nm3/h air in a moisturizing tower, controlling the moisturized air at 71°, discharging 500 kg/h water from the bottom of the tower, heat-exchanging with aqueous I from rapid cooling tower, recycling the water at 76° to the moisturizing tower, compressing the saturated air from the moisturizing tower at 41.5 Nm2/h, mixing with 6.55 kg/h propylene (II) [115-07-1], passing through 2 reactors, cooling the gas product to 200°, and supplying to the rapid cooling tower. The bottom liquid in the cooling tower was cooled to 66° and returned to the middle section of the rapid cooling tower at 460 kg/h, and a liquid was also discharged from the middle section and cooled with 28° water and recycled to the tower top at 300 kg/h. The bottom liquid of the rapid cooling tower containing 40.6% I was withdrawn at 24.4 kg/h. This method consumed 55 kg cooling water/kg II, whereas a method without the use of the moisturizing tower consumed 1.84 kg steam/kg II and 120 kg cooling water/kg II.
IT 79-10-7P, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(manufacture of, by oxidation of propylene with moisturized air)
RN 79-10-7 HCAPLUS
CN 2-Propenoic acid (CA INDEX NAME)



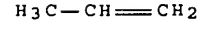
IT 115-07-1, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(oxidation of, by moisturized air, for acrylic acid manufacture)
RN 115-07-1 HCAPLUS
CN 1-Propene (CA INDEX NAME)



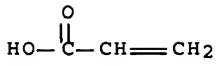
L85 ANSWER 19 OF 35 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1980:533058 HCAPLUS Full-text
DOCUMENT NUMBER: 93:133058
TITLE: Recovery of acrylic acid from gas phase oxidation products of propene
INVENTOR(S): Evans, William
PATENT ASSIGNEE(S): USA
SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 55040664	A	19800322	JP 1979-82002	19790628 <--
IN 151108	A1	19830219	IN 1979-DE362	19790522 <--
CA 1149414	A1	19830705	CA 1979-328496	19790528 <--
BR 7903545	A	19800603	BR 1979-3545	19790605 <--
ES 481587	A1	19800216	ES 1979-481587	19790615 <--
EP 9545	A1	19800416	EP 1979-102324	19790709 <--
EP 9545	B1	19821208		
R: BE, CH, DE, FR, GB, IT, NL				
DD 146588	A5	19810218	DD 1979-215363	19790905 <--
CS 213394	B2	19820409	CS 1979-6079	19790907 <--
AT 7905927	A	19820915	AT 1979-5927	19790907 <--
AT 370719	B	19830425		
NO 7902951	A	19800314	NO 1979-2951	19790912 <--
RO 79610	A1	19820817	RO 1979-98655	19790913 <--

PRIORITY APPLN. INFO.: US 1978-942090 A 19780913 <--
ED Entered STN: 12 May 1984
AB A reaction mixture of the gas-phase catalytic oxidation of propylene [115-07-1] at 200° is quenched to 70-90° with a quenching solution to give an acrylic acid (I) [79-10-7] solution and a I-containing gas; the I-containing gas is cooled in a heat exchanger to give a I solution which is recycled as the quenching solution
IT 115-07-1, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(oxidation of, gas-phase, recovery of acrylic acid from)
RN 115-07-1 HCAPLUS
CN 1-Propene (CA INDEX NAME)



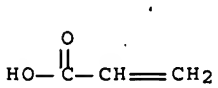
IT 79-10-7P, preparation
RL: PREP (Preparation)
(recovery of, from gas phase oxidation mixture of propene, apparatus for)
RN 79-10-7 HCAPLUS
CN 2-Propenoic acid (CA INDEX NAME)



L85 ANSWER 20 OF 35 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1980:449149 HCAPLUS Full-text
DOCUMENT NUMBER: 93:49149
TITLE: Method and reactor for vapor phase oxidation
INVENTOR(S): Takada, Masahiro; Uhara, Hiroyuki; Sato, Takahisa
PATENT ASSIGNEE(S): Nippon Shokubai Kagaku Kogyo Co., Ltd., Japan
SOURCE: Ger. Offen., 26 pp.
CODEN: GWXXBX
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

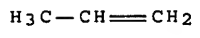
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 2830765	A1	19800131	DE 1978-2830765	19780713 <--
DE 2830765	C2	19920625		

PRIORITY APPLN. INFO.: DE 1978-2830765 A 19780713 <--
ED Entered STN: 12 May 1984
AB The fixed-bed reactor consists of a vessel containing a bundle of catalyst-filled tubes which pass through perforated shield plates. The intertubular space is separated into ≥2 cooling zones. There is a 0.2-5.0 mm gap between the tube outer wall and opening inner edge. The temperature in the cooling zones is controlled and the temperature difference between the cooling zones is 0-100°. The formation of hot spots is decreased. The reactor is suitable especially for hydrocarbon vapor-phase oxidation Thus, o-xylene was oxidized by air in a 1 g/20 L ratio at a space velocity of 4000/h to give phthalic anhydride in a reactor containing a bundle of 24 steel tubes having 25 mm inner diameter, 29 mm outer diameter, and 4 m long. The gap between the outer tube walls and the opening inner edges in a shield plate separating the intertubular space was 0.6 mm. TiO2-2.1 weight% V2O5 catalyst was used. The reaction temps. in the 1st and 2nd zones were 355 and 375°, resp. During 1 yr, the phthalic anhydride yield decreased from 115.3 only to 114.1% (o-xylene basis). When no shield plates were used, the yield decreased from 112.8 to 105.9%.
IT 79-10-7P, preparation
RL: PREP (Preparation)
(manufacture of, by oxidation of propene, apparatus for)
RN 79-10-7 HCAPLUS
CN 2-Propenoic acid (CA INDEX NAME)



IT 115-07-1, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(oxidation of, apparatus for, with catalyst in tubes)
RN 115-07-1 HCAPLUS

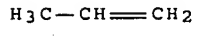
CN 1-Propene (CA INDEX NAME)



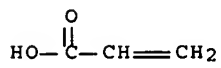
L85 ANSWER 21 OF 35 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1975:606785 HCAPLUS Full-text
DOCUMENT NUMBER: 83:206785
ORIGINAL REFERENCE NO.: 83:32559a,32562a
TITLE: Recovery of acrylic acid
INVENTOR(S): Shimizu, Noboru; Kubota, Kunihiro
PATENT ASSIGNEE(S): Nippon Shokubai Kagaku Kogyo Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 50095217	A	19750729	JP 1973-143799	19731225 <--
JP 57042618	B	19820909		
PRIORITY APPLN. INFO.:			JP 1973-143799	19731225 <--

ED Entered STN: 12 May 1984
AB In the manufacture of acrylic acid (I) [79-10-7] by the gas phase catalytic oxidation of propene [115-07-1] or acrolein [107-02-8], I in the gas mixture precooled to 130-200° was recovered as an aqueous solution by contacting with sprayed water followed by cooling to 40-60° in a heat exchanger containing polymerization inhibitor. Residual I in the waste gas mixture was recovered by passing through an absorption tower in contact with water at 40-60°.
IT 115-07-1, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(oxidation of, acrylic acid recovery from)
RN 115-07-1 HCAPLUS
CN 1-Propene (CA INDEX NAME)



IT 79-10-7P, preparation
RL: PREP (Preparation)
(recovery of, in catalytic oxidation of acrolein or propene)
RN 79-10-7 HCAPLUS
CN 2-Propenoic acid (CA INDEX NAME)



L85 ANSWER 22 OF 35 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
ACCESSION NUMBER: 2005-195989 [20] WPIX
DOC. NO. CPI: C2005-062111 [20]
TITLE: High temperature oxidation of gaseous reactant in shell and tube reactor, comprises disposing short bed of packing material adjacent to reactor tube inlets where short bed occupies less than specified volume of feed plenum
DERWENT CLASS: A41; E13; E17; J04; Q78
INVENTOR: FRUCHEY O S; KEYES B R; MURPHY C D; FRUCHEY O; KEYES B; MURPHY C
PATENT ASSIGNEE: (DOWC-C) DOW GLOBAL TECHNOLOGIES INC
COUNTRY COUNT: 35

PATENT INFO ABBR.:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
WO 2005016509	A1	20050224	(200520)*	EN	17[2]	
EP 1660225	A1	20060531	(200636)	EN		
BR 2003018401	A	20060801	(200655)	PT		
MX 2006001255	A1	20060501	(200680)	ES		
US 20060292046	A1	20061228	(200702)	EN		
CN 1819869	A	20060816	(200703)	ZH		
JP 2007521126	W	20070802	(200753)	JA	16	

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2005016509	A1	WO 2003-US23933	20030731
BR 2003018401	A	BR 2003-18401	20030731
CN 1819869	A	CN 2003-826973	20030731
EP 1660225	A1	EP 2003-818197	20030731
EP 1660225	A1	WO 2003-US23933	20030731
BR 2003018401	A	WO 2003-US23933	20030731
MX 2006001255	A1	WO 2003-US23933	20030731
US 20060292046	A1	WO 2003-US23933	20030731
CN 1819869	A	WO 2003-US23933	20030731
US 20060292046	A1	US 2006-565923	20060125
MX 2006001255	A1	MX 2006-1255	20060131
JP 2007521126	W	WO 2003-US23933	20030731
JP 2007521126	W	JP 2005-507860	20030731

FILING DETAILS:

PATENT NO	KIND		PATENT NO	
EP 1660225	A1	Based on	WO 2005016509	A
BR 2003018401	A	Based on	WO 2005016509	A
MX 2006001255	A1	Based on	WO 2005016509	A
JP 2007521126	W	Based on	WO 2005016509	A

PRIORITY APPLN. INFO: WO 2003-US23933 20030731
ED 20050708

AB WO 2005016509 A1 UPAB: 20050708

NOVELTY - Gaseous reactant is oxidated at high temperature in a shell and tube reactor (10) of the class with reactor tubes (50) by disposing a short bed of packing material (30) adjacent to the reactor tube inlets (70). The short bed occupies less than 20 volume% of the feed plenum. The short bed has a voidage of 0.3-0.75 and is operative to increase the velocity of the feed gas mixture in the vicinity of the reactor tube inlets.

DETAILED DESCRIPTION - High temperature oxidation of a gaseous reactant in a shell and tube reactor of the class with reactor tubes, comprises immersing reactor tubes in a heat exchange medium (80) contained in the shell, isolating the interior volume of the reactor tubes from the heat exchange medium, and disposing a short bed of packing material adjacent to the reactor tube inlets. The reactor tube inlets are in communication with a feed plenum having a characteristic cross-sectional area in the vicinity of the reactor tube inlets free from obstruction so that the velocity of a feed gas mixture to the reactor tube inlets is the volume rate of flow of the feed gas mixture divided by the characteristic cross-sectional area of the plenum in the vicinity of the reactor tubes. The short bed occupies less than 20 volume% of the feed plenum. The short bed has a voidage of 0.3-0.75 and is operative to increase the velocity of the feed gas mixture in the vicinity of the reactor tube inlets. The contamination of the feed plenum through the heat exchange medium is controlled in the event of a reactor breach in the vicinity of the reactor tube inlets. The process is generally of the class where the feed gas mixture is fed from the plenum to the reactor tubes.

INDEPENDENT CLAIMS are also included for:

(a) an apparatus for high temperature oxidation of a gaseous reactant in a shell and tube reactor comprising reactor tubes immersed in a heat-exchange medium at a temperature of 200-400 degrees C, and short bed of packing material adjacent to the reactor tube inlets; and

(b) a method for manufacturing acrylic acid in a shell and tube reactor for oxidizing propylene comprising flowing a feed gas mixture to a feed plenum through a distributor (60), directing the feed gas mixture from the feed plenum to reactors tubes disposed in the shell and tube reactor, providing a short bed of packing material adjacent to reactor tube inlets of the reactor tubes, and contacting the feed gas mixture with the short bed.

USE - The invention is for high temperature oxidation of a gaseous reactant in a shell and tube reactor of the class with reactor tubes. It is for manufacturing acrylic acid in a shell and tube reactor for oxidizing propylene (all claimed).

ADVANTAGE - The invention restricts migration of decomposition gases from heat exchange media into the reactor headspace (20). It eliminates auto-ignition problems stemming from heat-exchange media leaks, and ameliorates contaminant problems without the need for a deeper bed and its associated pressure drop and material expense.

DESCRIPTION OF DRAWINGS - The figure is a schematic diagram illustrating the process and apparatus for high temperature oxidation of a gaseous reactant in a shell and tube reactor.

Shell and tube reactor (10)
Reactor headspace (20)
Short bed of packing material (30)
Reactor tubes (50)
Distributor (60)
Reactor tube inlets (70)
Heat exchange medium (80)

L85 ANSWER 23 OF 35 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
ACCESSION NUMBER: 2004-719006 [70] WPIX
DOC. NO. CPI: C2004-253400 [70]
TITLE: Heterogeneous catalyzed gas phase partial

oxidation of propene to acrolein, useful for the production of acrylic acid, comprises processing the reaction mixture using a fixed catalyst bed comprising two separate reaction zones in series

DERWENT CLASS: A41; E17

INVENTOR: DIETERLE M; MUELLER E K J; MUELLER-ENGEL K; MUELLER-ENGEL K J; MULLER-ENGEL K J; PETZOLDT J; JOACHIM M K; JOCHEN P; MARTIN D

PATENT ASSIGNEE: (BADI-C) BASF AG

COUNTRY COUNT: 108

PATENT INFO ABBR.:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
WO 2004085363	A1	20041007	(200470)*	DE	31[0]	
DE 10313212	A1	20041007	(200473)	DE		
US 20040225158	A1	20041111	(200475)	EN		
EP 1613579	A1	20060111	(200604)	DE		
TW 2004027664	A	20041216	(200612)	ZH		
US 7019176	B2	20060328	(200623)	EN		
BR 2004008636	A	20060328	(200624)	PT		
CN 1764626	A	20060426	(200654)	ZH		
JP 2006521317	W	20060921	(200662)	JA	23	
KR 2005121215	A	20051226	(200668)	KO		
ZA 2005008595	A	20070425	(200734)	EN	41	
CN 1317251	C	20070523	(200761)	ZH		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2004085363	A1	WO 2004-EP2935	20040320
DE 10313212	A1	DE 2003-10313212	20030325
US 20040225158	A1 Provisional	US 2003-476162P	20030606
US 7019176	B2 Provisional	US 2003-476162P	20030606
TW 2004027664	A	TW 2004-104439	20040223
US 20040225158	A1	US 2004-784778	20040224
US 7019176	B2	US 2004-784778	20040224
BR 2004008636	A	BR 2004-8636	20040320
CN 1764626	A	CN 2004-80008095	20040320
EP 1613579	A1	EP 2004-722177	20040320
EP 1613579	A1	WO 2004-EP2935	20040320
BR 2004008636	A	WO 2004-EP2935	20040320
JP 2006521317	W	WO 2004-EP2935	20040320
KR 2005121215	A	WO 2004-EP2935	20040320
KR 2005121215	A	KR 2005-717973	20050923
ZA 2005008595	A	ZA 2005-8595	20051024
JP 2006521317	W	JP 2006-504768	20040320
CN 1317251	C	CN 2004-80008095	20040320

FILING DETAILS:

PATENT NO	KIND		PATENT NO	
EP 1613579	A1	Based on	WO 2004085363	A
BR 2004008636	A	Based on	WO 2004085363	A
JP 2006521317	W	Based on	WO 2004085363	A
KR 2005121215	A	Based on	WO 2004085363	A

PRIORITY APPLN. INFO: US 2003-476162P 20030606
DE 2003-10313212 20030325

ED 20050707

AB WO 2004085363 A1 UPAB: 20050707

NOVELTY - A process for the heterogeneous catalyzed partial oxidation of propene to acrolein in the gas phase comprises processing the reaction mixture using a fixed catalyst bed comprising two separate reaction zones in series, A and B maintained at 290-380degreesC and where active mass comprises a multimetal oxide of Mo, Fe and Bi such that zone A results in a propene conversion of 40-80 mol.%.

DETAILED DESCRIPTION - A process for the heterogeneous catalyzed partial oxidation of propene to acrolein in the gas phase comprises processing a reaction mixture comprising propene , molecular oxygen and at least one inert gas having a molar ratio of O2 to C3H6 of at least 1 in a reaction stage using a fixed catalyst bed comprising two separate reaction zones in series, A and B maintained at 290-380degreesC and where active mass comprises a multimetal oxide of Mo, Fe and Bi such that zone A results in a propene conversion of 40-80 mol.% and a single pass thorugh the total catalyst bed results in a greater than 90 mol.% propene conversion with a selectivity to acrolein of greater than 90 mol.% whereby the reaction mixture passes through the zones corresponding to theur alphabetical order and is characterized by a reaction gas loading of 90-160 Nl propene per liter of fixed catalyst bed per hour; the volume specific activity of the fixed catalyst bed in the flow direction of the reaction mixture is either constant or increases at least once; and the difference between the maximum temperatures in zone A and B is at least 0degreesC.

USE - The process is useful for the production of acrolein, useful for the production of acrylic acid.

ADVANTAGE - The process has high selectivity.

L85 ANSWER 24 OF 35 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
ACCESSION NUMBER: 2004-756704 [74] WPIX
DOC. NO. CPI: C2004-265366 [74]
TITLE: Heterogeneously catalyzed partial oxidation of propane and/or isobutane to (meth)acrylic acid involves separating product, dividing residual product gas into portions to be recycled and discharged, and recycling at pressure of feeding step
DERWENT CLASS: A41; E17
INVENTOR: ADAMI C; BORGMEIER F; CRONE S; DIEFENBACHER A; MACHHAMMER O; MUELLER-ENGEL K; MUELLER-ENGEL K J; MULLER-ENGEL K J; MUELLER E K J
PATENT ASSIGNEE: (BADI-C) BASF AG
COUNTRY COUNT: 107

PATENT INFO ABBR.:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
US 20040204607	A1	20041014	(200474)*	EN	17[3]	
DE 10316465	A1	20041028	(200474)	DE		
WO 2004089856	A2	20041021	(200474)	DE		
EP 1615870	A2	20060118	(200606)	DE		
BR 2004009191	A	20060411	(200627)	PT		
KR 2006005361	A	20060117	(200659)	KO		
CN 1771222	A	20060510	(200663)	ZH		
JP 2006522764	W	20061005	(200667)	JA	30	
ZA 2005009012	A	20070328	(200728)	EN	49	

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
US 20040204607	A1 Provisional	US 2003-461136P	20030409
US 20040204607	A1	US 2004-815873	20040402
DE 10316465	A1	DE 2003-10316465	20030409
BR 2004009191	A	BR 2004-9191	20040407
CN 1771222	A	CN 2004-80009517	20040407
EP 1615870	A2	EP 2004-726111	20040407
WO 2004089856	A2	WO 2004-EP3690	20040407
EP 1615870	A2	WO 2004-EP3690	20040407
BR 2004009191	A	WO 2004-EP3690	20040407
KR 2006005361	A	WO 2004-EP3690	20040407
JP 2006522764	W	WO 2004-EP3690	20040407
KR 2006005361	A	KR 2005-719119	20051007
JP 2006522764	W	JP 2006-505033	20040407
ZA 2005009012	A	ZA 2005-9012	20051108

FILING DETAILS:

PATENT NO	KIND		PATENT NO	
EP 1615870	A2	Based on	WO 2004089856	A
BR 2004009191	A	Based on	WO 2004089856	A
KR 2006005361	A	Based on	WO 2004089856	A
JP 2006522764	W	Based on	WO 2004089856	A

PRIORITY APPLN. INFO: DE 2003-10316465 20030409
US 2003-461136P 20030409

ED 20051110

AB US 20040204607 A1 UPAB: 20051110

NOVELTY - Heterogeneously catalyzed partial direct oxidation of propane and/or isobutane to (meth)acrylic acid involves feeding reaction mixture to reaction stage; partially oxidizing the mixture; and conducting product gas mixture into a workgroup stage that separates product, divides residual product gas into a portion to be recycled and a portion to be discharged, and feeds portion to be recycled to reaction stage; after compression to pressure of feeding step.

DETAILED DESCRIPTION - Heterogeneously catalyzed partial direct oxidation of propane and/or isobutane to (meth)acrylic acid target product(s) involves:

(a) feeding a starting reaction gas mixture comprising propane and/or isobutane, molecular oxygen and at least one inert diluent gas having an inlet pressure (P1) to a reaction stage, which apart from inleting for the starting reaction gas mixture, optionally further inlets for auxiliary gases and has an outlet for the product gas mixture that is sealed on the gas side;

(b) partially oxidizing the propane and/or isobutane in the starting reaction gas mixture to at least one target product by passing the reaction mixture at elevated temperature over a solid state catalyst; and

(c) conducting the reaction gas mixture as a product gas mixture comprising at least one target product having an outlet pressure (P2) out of the reaction stage into a workgroup stage, which apart from inleting for the product gas mixture, optionally further inlets for auxiliary gases and has an outlet for the residual product gas mixture that is sealed on the gas side.

The workgroup stage separates the target product present in the product gas mixture into a liquid phase and conducts the remaining residual product gas mixture comprising not only propane and/or isobutane, but in some cases propene and/or isobutene, having an outlet pressure (P3), into the reaction

stage. P3 is less than P1. The method involves selecting P2 such that P3 is at least 1.5 bar, divides the residual product gas mixture into two portions of the same composition, discharges one portion as output and recycles the other portion as cycle gas and feeds it back to the reaction stage compressed to the inlet pressure P1, as a constituent of the starting reaction gas mixture.

USE - For heterogeneously catalyzed partial direct oxidation of propane and/or isobutane to (meth)acrylic acid(s) (claimed).

ADVANTAGE - The method leads to increased conversions under otherwise identical reaction conditions and based on single pass, without being accompanied by a significant reduction in the selectivity of the target product formation. Operation of the workgroup stage at elevated pressure enables even increased amounts of cycle gas to be conveyed in comparatively small volumes and with comparatively low pressure drops incurred, which reduces the compressor output required for the cycle gas compression to the inlet pressure P1 of the reaction stage. This further increases the amount of cycle gas compared to the output amount and minimizes the losses of unconverted propane and/or isobutane present in the output. The recycling of the propane without preceding removal of residual product gas prevents the pressure drops which are necessarily associated with such removal and ensures the simultaneous and energetically advantageous recycling of other constituents, present in the residual product gas mixture and beneficial for the reaction, such as steam and oxygen. The method does not require costly and inconvenient removal of unconverted alkane and alkene from the residual product gas mixture, of the prior art, and at the same time also increases the reaction conversion based on single throughput through the reaction stage without a decrease in the target product selectivity and provides a high conversion of propane and/or isobutane i.e. exhibits high space-time yield of target product coupled with low energy demands with minimum feedstock losses while minimizing conveyer and compressor outputs. When the process is carried out at high pressures, the pressure drops both in the reaction stage and in workgroup stage are at most 0.05 bar. The control of the pressure ratios is performed by simple throttle apparatus. The conversion from propane and/or isobutane, based on single pass of the reaction gas mixture through the reaction stage is 10-70 mol%, and the selectivity of the target product formation is 40-98 mol%. The propane, isobutane, propene and/or isobutene present in the portion of the residual product gas mixture that is discharged as output are removed from the residual product gas mixture and recycled into the reaction stage, recompressed to the inlet pressure P1. The cycle gas is recompressed to the inlet pressure P1 using blower. The propane, isobutane, propene and/or isobutene present in the residual product gas mixture to be discharged can also be removed and recycled into the reaction stage after compression.

L85 ANSWER 25 OF 35 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
ACCESSION NUMBER: 2003-663284 [62] WPIX
DOC. NO. CPI: C2003-180086 [62]
TITLE: Vapor-phase catalytic oxidation production of (meth)acrolein or (meth)acrylic acid, involves using fixed bed multi-tube reactor and filling catalyst in each reaction tube interior while feeding reaction raw material gas
DERWENT CLASS: A41; E17
INVENTOR: HOSAKA H; HOSAKA H M C C; HOSAKA K; JINNO K; JINNO K M C C; OGAWA Y; OGAWA Y M C C; SAITO T; SUZUKI Y; SUZUKI Y M C C; YADA S
PATENT ASSIGNEE: (MITU-C) MITSUBISHI CHEM CORP
COUNTRY COUNT: 92

PATENT INFO ABBR.:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC	
WO 2003055835	A1	20030710	(200362)*	JA	28[0]		<--
							<--
JP 2003261501	A	20030919	(200363)	JA	6		<--
							<--
JP 2003252820	A	20030910	(200368)	JA	5		<--
							<--
AU 2002360050	A1	20030715	(200421)	EN			<--
EP 1460053	A1	20040922	(200462)	EN			
US 20040249000	A1	20041209	(200481)	EN			
BR 2002014811	A	20041214	(200510)	PT			
CN 1572772	A	20050202	(200532)	ZH			
CN 1599708	A	20050323	(200545)	ZH			
US 20070021631	A1	20070125	(200710)	EN			
US 20070021632	A1	20070125	(200710)	EN			
IN 2004DN01439	P1	20070209	(200729)	EN			

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2003055835	A1	WO 2002-JP13608	20021226
AU 2002360050	A1	AU 2002-360050	20021226
BR 2002014811	A	BR 2002-14811	20021226
CN 1572772	A Div Ex	CN 2002-823983	20021226
CN 1599708	A	CN 2002-823983	20021226
EP 1460053	A1	EP 2002-793405	20021226
EP 1460053	A1	WO 2002-JP13608	20021226
US 20040249000	A1 Cont of	WO 2002-JP13608	20021226
BR 2002014811	A	WO 2002-JP13608	20021226
US 20070021632	A1 Cont of	WO 2002-JP13608	20021226
US 20070021631	A1 Cont of	WO 2002-JP13608	20021226
JP 2003252820	A	JP 2002-380053	20021227
JP 2003261501	A	JP 2003-333	20030106
CN 1572772	A	CN 2004-10063777	20021226
US 20040249000	A1	US 2004-857437	20040601
US 20070021632	A1 Div Ex	US 2004-857437	20040601
US 20070021631	A1 Cont of	US 2004-857437	20040601
US 20070021631	A1	US 2006-527451	20060927
US 20070021632	A1	US 2006-528395	20060928
IN 2004DN01439	P1	WO 2002-JP13608	20021226
IN 2004DN01439	P1	IN 2004-DN1439	20040527

FILING DETAILS:

PATENT NO	KIND	PATENT NO
AU 2002360050 A1	Based on	WO 2003055835 A
EP 1460053 A1	Based on	WO 2003055835 A
BR 2002014811 A	Based on	WO 2003055835 A

PRIORITY APPLN. INFO: JP 2002-325 20020107
JP 2001-396345 20011227

ED 20050531

AB WO 2003055835 A1 UPAB: 20060120

NOVELTY - Vapor-phase catalytic oxidation is performed using fixed bed multi-tube reactor and filling catalyst in each reaction tube interior while feeding reaction raw material gas. At least two catalyst layers of different activity

are provided in each reaction tube, and, in the catalyst layer nearest the reaction raw material gas inlet, a catalyst layer of higher activity than the next adjacent catalyst layer.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for the manufacture of (meth)acrolein or (meth)acrylic acid by oxidation of propane, propylene or isobutylene using this method.

USE - (Meth)acrolein or (meth)acrylic acid production.

ADVANTAGE - The occurrence of hot-spots can be efficiently inhibited, and excess oxidation reactions are inhibited.

L85 ANSWER 26 OF 35 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
ACCESSION NUMBER: 2002-226848 [28] WPIX
CROSS REFERENCE: 2002-195600; 2002-216790; 2003-040743; 2003-210023; 2004-042334; 2004-042335
DOC. NO. CPI: C2002-068962 [28]
TITLE: Production of acrolein or acrylic acid from propane, involves partial gas-phase dehydrogenation, removal of hydrogen and partial gas-phase oxidation of propene with nitrogen as diluent, and recycling of unreacted propane
DERWENT CLASS: A41; E17
INVENTOR: BORGMEIER F; HARTH K; MACHHAMMER O; MUELLER-ENGEL K J; MULLER-ENGEL K J; ROSOWSKI F; SCHINDLER G; SCHINDLER G P; TENTEN A; ZEHNER P; SCHINDLER G -
PATENT ASSIGNEE: (BADI-C) BASF AG; (BORG-I) BORGMEIER F; (HART-I) HARTH K; (MACH-I) MACHHAMMER O; (MULL-I) MULLER-ENGEL K J; (ROSO-I) ROSOWSKI F; (SCHI-I) SCHINDLER G; (TENT-I) TENTEN A; (ZEHN-I) ZEHNER P
COUNTRY COUNT: 95

PATENT INFO ABBR.:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC	
WO 2001096270	A2	20011220	(200228)*	DE	38[0]		<--
DE 10028582	A1	20011220	(200228)	DE			<--
AU 2001081823	A	20011224	(200231)	EN			<--
EP 1289920	A2	20030312	(200320)	DE			<--
KR 2003009525	A	20030129	(200336)	KO			<--
CZ 2002004057	A3	20030514	(200337)	CS			<--
BR 2001011607	A	20030701	(200356)	PT			<--
US 20030181762	A1	20030925	(200364)	EN			<--
CN 1436160	A	20030813	(200373)	ZH			<--
JP 2004503516	W	20040205	(200412)	JA	71		
US 6781017	B2	20040824	(200457)	EN			
EP 1289920	B1	20040915	(200460)	DE			
ES 2228925	T3	20050416	(200528)	ES			
CN 1211339	C	20050720	(200643)	ZH			

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2001096270 A2		WO 2001-EP6528	20010608
DE 10028582 A1		DE 2000-10028582	20000614
AU 2001081823 A		AU 2001-81823	20010608
BR 2001011607 A		BR 2001-11607	20010608
CN 1436160 A		CN 2001-811097	20010608
EP 1289920 A2		EP 2001-960291	20010608
EP 1289920 B1		EP 2001-960291	20010608
ES 2228925 T3		EP 2001-960291	20010608
EP 1289920 A2		WO 2001-EP6528	20010608
CZ 2002004057 A3		WO 2001-EP6528	20010608
BR 2001011607 A		WO 2001-EP6528	20010608
US 20030181762 A1		WO 2001-EP6528	20010608
JP 2004503516 W		WO 2001-EP6528	20010608
US 6781017 B2		WO 2001-EP6528	20010608
EP 1289920 B1		WO 2001-EP6528	20010608
CZ 2002004057 A3		CZ 2002-4057	20010608
JP 2004503516 W		JP 2002-510416	20010608
KR 2003009525 A		KR 2002-717044	20021213
US 20030181762 A1		US 2002-297602	20021213
US 6781017 B2		US 2002-297602	20021213
CN 1211339 C		CN 2001-811097	20010608

FILING DETAILS:

PATENT NO	KIND	PATENT NO
ES 2228925 T3	Based on	EP 1289920 A
AU 2001081823 A	Based on	WO 2001096270 A
EP 1289920 A2	Based on	WO 2001096270 A
CZ 2002004057 A3	Based on	WO 2001096270 A
BR 2001011607 A	Based on	WO 2001096270 A
JP 2004503516 W	Based on	WO 2001096270 A
US 6781017 B2	Based on	WO 2001096270 A
EP 1289920 B1	Based on	WO 2001096270 A

PRIORITY APPLN. INFO: DE 2000-10028582 20000614
ED 20050525
AB WO 2001096270 A2 UPAB: 20060119

NOVELTY - Molecular nitrogen is used as a diluent gas in the partial oxidation stage of a 3-stage method for the production of acrolein and acrylic acid from propane by:

(A) partial gas-phase dehydrogenation;

(B) removal of hydrogen and partial gas-phase oxidation of propene; and

(C) separation of product and recycling of unreacted propane to stage (A).

DETAILED DESCRIPTION - Acrolein and acrylic acid are produced from propane by:

(A) partial gas-phase dehydrogenation of propane in presence of a heterogeneous catalyst to form a mixture (A) containing molecular hydrogen, propene and unreacted propane;

(B) removing at least some of the hydrogen from the components other than propane and propene to give a mixture (A'), feeding (A') into oxidation reactor(s) and subjecting the propylene to selective, gas-phase partial oxidation in presence of heterogeneous catalyst to give a gas mixture (B) containing acrolein and acrylic acid; and

(C) separating the required product and recycling unreacted propane (at least) to stage (A). In this process, molecular nitrogen is used as diluent gas in the partial oxidation stage (B).

USE - For the production of acrolein and acrylic acid from propane. Acrolein is used e.g. for the production of glutaraldehyde, methionine, folic acid and acrylic acid ; acrylic acid is used e.g. for the production of polymers.

ADVANTAGE - Enables the production of acrolein and acrylic acid from propane with the formation of smaller amounts of unwanted by-products, i.e. propionaldehyde, propionic acid, methane, ethane, ethylene, allene, acetylene etc.

L85 ANSWER 27 OF 35 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
ACCESSION NUMBER: 2000-672467 [65] WPIX
CROSS REFERENCE: 2000-618810; 2000-672468; 2000-672466; 2000-619714
DOC. NO. CPI: C2000-203608 [65]
TITLE: Catalytic gas phase **oxidation** of **propylene** into **acrylic acid** using molecular oxygen over a two-stage fixed bed catalyst comprising an oxide or Mo and/or W and Bi, Te, Sb, Sn and/or Cu
DERWENT CLASS: A41; E17
INVENTOR: ARNOLD H; HAMMON U; HARTH K; NEUMANN H; NEUMANN H P; TENTEN A; UNVERRICHT S
PATENT ASSIGNEE: (BADI-C) BASF AG
COUNTRY COUNT: 23

PATENT INFO ABBR.:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC	
WO 2000053558	A1	20000914	(200065)*	DE	52[0]		<--
EP 1159248	A1	20011205	(200203)	DE			<--
BR 2000008878	A	20020122	(200216)	PT			<--
CN 1343193	A	20020403	(200247)	ZH			<--
JP 2002539102	W	20021119	(200281)	JA	56		<--
EP 1159248	B1	20031105	(200377)	DE			<--
ES 2213002	T3	20040816	(200455)	ES			
US 6998504	B1	20060214	(200613)	EN			

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2000053558	A1	WO 2000-EP1631	20000228
BR 2000008878	A	BR 2000-8878	20000228
CN 1343193	A	CN 2000-804787	20000228
EP 1159248	A1	EP 2000-918748	20000228
EP 1159248	B1	EP 2000-918748	20000228
ES 2213002	T3	EP 2000-918748	20000228
JP 2002539102	W	JP 2000-603999	20000228
EP 1159248	A1	WO 2000-EP1631	20000228
BR 2000008878	A	WO 2000-EP1631	20000228
JP 2002539102	W	WO 2000-EP1631	20000228
EP 1159248	B1	WO 2000-EP1631	20000228
US 6998504	B1	WO 2000-EP1631	20000228
US 6998504	B1	US 2001-936184	20010910

FILING DETAILS:

PATENT NO	KIND		PATENT NO	
ES 2213002	T3	Based on	EP 1159248	A
EP 1159248	A1	Based on	WO 2000053558	A
BR 2000008878	A	Based on	WO 2000053558	A
JP 2002539102	W	Based on	WO 2000053558	A
EP 1159248	B1	Based on	WO 2000053558	A
US 6998504	B1	Based on	WO 2000053558	A

PRIORITY APPLN. INFO: DE 1999-19948248 19991007
DE 1999-19910506 19990310
DE 1999-19910508 19990310
DE 1999-19927624 19990617

ED 20060503

AB WO 2000053558 A1 UPAB: 20060503

NOVELTY - Acrylic acid production by catalyitic gas phase oxidation of propylene with O2 over a fixed bed catalyst comprising an oxide of Mo and/or W and Bi, Te, Sb, Sn and/or Cu.

DETAILED DESCRIPTION - Process for catalytic gas phase oxidation of propylene to acrylic acid by first passing a reaction gas stream comprising propylene, molecular oxygen and at least one inert gas consisting to at least 20 % of its volume of molecular N2, and in which the molar ratio O2:C3H6 is greater than or equal to 1, at elevated temperature over a first fixed bed catalyst whose active mass comprises a multimetal oxide comprising at least Mo and/or W together with Bi, Te, Sb, Sn and/or Cu, such that the conversion of propylene on a single pass is at least 90 mol % with an associated combined selectivity to the formation of acrolein and acrylic acid of at least 90 mol. %; optionally lowering the temperature of the product gas mixture leaving the first stage by indirect and/or direct cooling and optionally adding molecular O2 and/or inert gas, and subsequently passing the resulting reaction gas stream 2 comprising a mixture of acrolein, molecular O2 and at least one inert gas and containing O2 and acrolein in a molar ratio O2:C3H4O of greater than or equal to 0.5, into a second reaction stage at elevated temperature over a second fixed bed catalyst whose active mass comprises a multimetal oxide containing at least Mo and V such that the conversion of acrloein in a single pass is at least 90 mol % with an associated selectivity to the formation of acrylic acid of at least 80 mol. % on the propylene feed, characterised in that (a) the loading of the fixed bed catalyst with the propylene in the reaction mixture is greater than or equal to 160 Nl propylene/volume catalyst.h; (b) the first fixed bed catalyst is contained in two spatially successive reaction zones A and B, the reaction zone A being held at 300-390degreesC and reaction zone B being held at 305-420 (305-340) (310-330)degreesC while the temperature in zone B is at least 5degreesC higher (preferably at least 10degreesC higher) than the temperature in zone A; (c) the starting reaction mixture flows through the reaction zones A and B in the order A first, then B; (d) reaction zone A extends to a point such that the conversion of propylene in this zone is 40-80 (50-70) (65-75) mol. %; (e) the loading of the second catalyst bed with the acrolein present in the second reaction mixture is at least 140 Nl acrolein/l catalyst filling.h; (f) the second fixed bed catalyst is in the form of two spatially successive reaction zones C and D, the reaction zone C being held at 230-270degreesC and reaction zone D being held at 250-300degreesC while the temperature in zone D is at least 5degreesC higher, preferably at least 20degreesC higher than the temperature in zone C; (g) the second reaction mixture flows through the reaction zones C and D in the order C first, then D; (h) reaction zone C extends to a point such that the conversion of acrolein in this zone is 55-85 (65-80) mol. %.

USE - Acrylic acid is useful, as such or in the form of its alkyl esters, in the production of polymers which are useful in the production of adhesives.

ADVANTAGE - The process allows direct conversion of an acrolein-containing reaction gas into acrylic acid with higher space-time yields of the desired product than is possible using prior art processes.

L85 ANSWER 28 OF 35 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
ACCESSION NUMBER: 2000-525383 [48] WPIX
DOC. NO. CPI: C2000-156244 [48]
TITLE: Production of acrolein, useful as intermediate for glutardialdehyde, methionine, folic acid and acrylic acid, by catalytic oxidation of propene uses 2 consecutive reactors operating outside explosion range
DERWENT CLASS: A41; E17
INVENTOR: ARNOLD H; MACCHAMMER O; MACHHAMMER O; MUELLER-ENGEL K; MUELLER-ENGEL K J; ZEHNER P
PATENT ASSIGNEE: (BADI-C) BASF AG
COUNTRY COUNT: 22

PATENT INFO ABBR.:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC	
DE 19902562	A1	20000727	(200048)*	DE	9[1]		<--
WO 2000043341	A2	20000727	(200048)	DE			<--
EP 1144352	A2	20011017	(200169)	DE			<--
BR 2000007601	A	20011030	(200173)	PT			<--
CN 1336908	A	20020220	(200235)	ZH			<--
US 6410785	B1	20020625	(200246)	EN			<--

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
DE 19902562 A1		DE 1999-19902562	19990122
BR 2000007601 A		BR 2000-7601	20000115
CN 1336908 A		CN 2000-802952	20000115
EP 1144352 A2		EP 2000-912429	20000115
WO 2000043341 A2		WO 2000-EP304	20000115
EP 1144352 A2		WO 2000-EP304	20000115
BR 2000007601 A		WO 2000-EP304	20000115
US 6410785 B1		WO 2000-EP304	20000115
US 6410785 B1		US 2001-869294	20010718

FILING DETAILS:

PATENT NO	KIND		PATENT NO
EP 1144352 A2		Based on	WO 2000043341 A
BR 2000007601 A		Based on	WO 2000043341 A
US 6410785 B1		Based on	WO 2000043341 A

PRIORITY APPLN. INFO: DE 1999-19902562 19990122
ED 20050411
AB DE 19902562 A1 UPAB: 20050411
NOVELTY - A mixture containing propene and oxygen (O2) is passed at elevated temperature through:

(i) a zone containing a first catalyst in the solid aggregate state to oxidize part of the propene to acrolein at a propene/O2 molar ratio of over 1 and

(ii) other zone(s) with solid catalyst, with addition of O2, so that not less than 90 mole-% of the propene reacts with at least 80 mole-% selectivity to acrolein.

DETAILED DESCRIPTION - In the production of acrolein by gas phase partial oxidation of propene with oxygen (O2) over a heterogeneous catalyst in the solid aggregate state:

(i) a mixture containing propene and O2 in over 1:1 molar ratio is passed at elevated temperature through a first reaction zone containing a first catalyst in the solid aggregate state to oxidize part of the propene to acrolein, then

(ii) the reaction mixture is passed at elevated temperature through other reaction zone(s) with a solid catalyst charge, with addition of (gas containing) O2 in at least one of the later zones to increase the O2/propene molar ratio, so that not less than 90 mole-% of the propene fed to zone I reacts with at least 80 mole-% selectivity to acrolein.

INDEPENDENT CLAIMS are also included for

(a) the production of acrylic acid from propene, including this process;

(b) apparatus for the gas phase oxidation of propene to acrolein;

(c) apparatus for the gas phase oxidation of propene to acrolein and then of acrolein to acrylic acid.

USE - Acrolein is an important intermediate, e.g. for the production of glutardialdehyde, methionine, folic acid and acrylic acid. The process is also useful for the gas phase partial oxidation of iso-butyric acid, tert.-butanol, iso-butene, iso-butyraldehyde and/or tert.-butyl methyl ether to methacrolein and/or methacrylic acid on heterogeneous catalyst.

ADVANTAGE - As the sum of the molar amounts of propene and acrolein in each reaction zone exceeds the molar amount of O2, the risk of explosion is reduced and the heat evolved can be removed. It is also possible to reduce the amount of inert diluent gas significantly, without impairing safety. Also, none of the product gas mixture is recycled, which reduces the amount of inert gas in the cycle.

DESCRIPTION OF DRAWINGS - The drawing is the triangular diagram showing the explosion range (+) in the N2-propene-O2 system at 180 degreesC and 1 bar.

L85 ANSWER 29 OF 35 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
ACCESSION NUMBER: 1999-131353 [11] WPIX
DOC. NO. CPI: C1999-038338 [11]
TITLE: Polypropylene graft polymerisation with reduced reactor fouling - employs a continuous feed of nitric oxide as a gas phase free radical scavenger to reduce polymer build-up without reducing monomer conversion
DERWENT CLASS: A17; E36
INVENTOR: DENICOLA A J; SONG C K; SONG C Q
PATENT ASSIGNEE: (BASE-C) BASELL NORTH AMERICA INC; (MONT-C) HIMONT INC; (MONT-C) MONTELL NORTH AMERICA INC
COUNTRY COUNT: 37

PATENT INFO ABBR.:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC

US 5863994	A	19990126	(199911)*	EN	6[0]	<--
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EP 905155	A1	19990331	(199917)	EN		<--
						<--
AU 9887103	A	19990415	(199926)	EN		<--
						<--
ZA 9808584	A	19990630	(199931)	EN	18	<--
						<--
CN 1212969	A	19990407	(199932)	ZH		<--
						<--
JP 11158234	A	19990615	(199934)	JA	7	<--
						<--
CA 2248405	A1	19990329	(199937)	EN		<--
						<--
BR 9803790	A	19991214	(200016)	PT		<--
						<--
KR 99030222	A	19990426	(200028)	KO	[0]	<--
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AU 735625	B	20010712	(200147)	EN		<--
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TW 479065	A	20020311	(200309)	ZH		<--
						<--
EP 905155	B1	20030226	(200316)	EN		<--
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CA 2248405	C	20030311	(200324)	EN		<--
						<--
DE 69811586	E	20030403	(200330)	DE		<--
						<--
ES 2193457	T3	20031101	(200382)	ES		<--
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RU 2216550	C2	20031120	(200405)	RU		<--
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MX 212667	B	20030127	(200412)	ES		<--
						<--
CN 1107086	C	20030430	(200540)	ZH		<--
KR 538894	B1	20060322	(200724)	KO		
IN 1998CH02096	I4	20070601	(200750)	EN		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
US 5863994	A	US 1997-939237	19970929
ZA 9808584	A	ZA 1998-8584	19980918
TW 479065	A	TW 1998-115683	19980921
CA 2248405	A1	CA 1998-2248405	19980922
CA 2248405	C	CA 1998-2248405	19980922
DE 69811586	E	DE 1998-611586	19980926
EP 905155	A1	EP 1998-118277	19980926
EP 905155	B1	EP 1998-118277	19980926
DE 69811586	E	EP 1998-118277	19980926
ES 2193457	T3	EP 1998-118277	19980926
AU 9887103	A	AU 1998-87103	19980928
AU 735625	B	AU 1998-87103	19980928
BR 9803790	A	BR 1998-3790	19980928
MX 212667	B	MX 1998-7910	19980928
RU 2216550	C2	RU 1998-117917	19980928
CN 1212969	A	CN 1998-120895	19980929
CN 1107086	C	CN 1998-120895	19980929

JP 11158234 A	JP 1998-274729 19980929
KR 99030222 A	KR 1998-40442 19980929
KR 538894 B1	KR 1998-40442 19980929
IN 1998CH02096 I4	IN 1998-CH2096 19980917

FILING DETAILS:

PATENT NO	KIND		PATENT NO	
AU 735625	B	Previous Publ	AU 9887103	A
DE 69811586	E	Based on	EP 905155	A
ES 2193457	T3	Based on	EP 905155	A
KR 538894	B1	Previous Publ	KR 9930222	A

PRIORITY APPLN. INFO: US 1997-939237 19970929
ED 20050704
AB US 5863994 A UPAB: 20060115
Production of a graft copolymer comprises, in a non- oxidising environment: (a) treating a propylene polymer material (A) with an organic free radical polymerisation initiator; (b) treating (A) simultaneously or sequentially with 5-240 parts by weight (pts.weight) per 100 pts.weight (A) of a free radical polymerisable grafting monomer(s); and (c) removing any unreacted grafting monomer from the resulting grafted propylene polymer material, decomposing any unreacted initiator, and deactivating any residual free radicals in the material, wherein (a) and (b) are carried out in the presence of nitric oxide that is added in an inert gas as 0.05-50 ppm, based on the inert gas, to reduce reactor fouling.

ADVANTAGE - The continuous feed of nitric oxide, which acts as a gas phase free radical scavenger, reduces deposition and build-up of polymer on polymerisation equipment such as reactor walls and gas circulation loops, while having no effect on the percentage of monomer conversion or grafting efficiency, and so increases the operability and productivity of a commercial plant.

L85 ANSWER 30 OF 35 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
ACCESSION NUMBER: 1999-470120 [40] WPIX
CROSS REFERENCE: 1999-518561
DOC. NO. CPI: C1999-138132 [40]
TITLE: Multimetal oxides used as catalysts in oxidative dehydrogenation of propane to propene
DERWENT CLASS: A41; E17; E37; H04; J04
INVENTOR: JACHOW H
PATENT ASSIGNEE: (BADI-C) BASF AG
COUNTRY COUNT: 1

PATENT INFO ABBR.:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC	
DE 19807269	A1	19990826	(199940)*	DE	5[0]		<--

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
DE 19807269 A1		DE 1998-19807269	19980220

PRIORITY APPLN. INFO: DE 1998-19807269 19980220
ED 20050705

AB DE 19807269 A1 UPAB: 20050705

NOVELTY - Multimetal oxide compositions, comprising molybdenum (Mo) modified with other specified element(s), have an average pore diameter at most 0.04 microns and at least 0.01 microns and a specific surface area at most 20 m2/g.

DETAILED DESCRIPTION - Multimetal oxide compositions of formula (I) have an average pore diameter at most 0.04 microns and at least 0.01 microns and a specific surface area at most 20 m2/g:

M1aMo1-bM2bOx (I)

M1 = cobalt (Co), nickel (Ni), magnesium (Mg), zinc (Zn), manganese (Mn) and/or copper (Cu);

M2 = tungsten (W), vanadium (V), tellurium (Te), niobium (Nb), phosphorus (P), chromium (Cr), iron (Fe), antimony (Sb), cerium (Ce), tin (Sn) and/or lanthanum (La);

a = 0.5 - 1.5;

b = 0 - 0.5;

x = a valency depending on the valency and content of elements other than oxygen (O).

USE - Composition (I) is used as catalyst in the oxidative dehydrogenation of propane to propene (claimed). It is used in gas phase dehydrogenation of propane to propene or to propene, acrolein and acrylic acid.

ADVANTAGE - Compared with existing multimetal oxide catalysts, (I) increases the space-time yield under given feed and reaction conditions.

L85 ANSWER 31 OF 35 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN

ACCESSION NUMBER: 1997-503017 [46] WPIX

DOC. NO. CPI: C1997-159952 [46]

TITLE: Unsaturated carboxylic acid production for methacrylic acid formation - by using recycle gas stream comprising effective amount of alkane to enhance efficiency of aldehyde formation, to form acrylic acid

DERWENT CLASS: A41; E17

INVENTOR: BROCKWELL J L; ETZKORN W G; MAHER J M; WARREN B K; YOUNG M A

PATENT ASSIGNEE: (BROC-I) BROCKWELL J L; (ETZK-I) ETZKORN W G; (MAHE-I) MAHER J M; (UNIC-C) UNION CARBIDE CHEM & PLASTICS TECHNOLOGY; (WARR-I) WARREN B K; (YOUN-I) YOUNG M A

COUNTRY COUNT: 52

PATENT INFO ABBR.:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC	
WO 9736849	A1	19971009	(199746)*	EN	31[20]		<--
AU 9725526	A	19971022	(199808)	EN			<--
CZ 9803168	A3	19990113	(199908)	CS			<--
ZA 9808524	A	19990630	(199931)#	EN	28		<--
EP 938463	A1	19990901	(199940)	EN			<--
CN 1220654	A	19990623	(199943)	ZH			<--
BR 9708392	A	19990803	(199952)	PT			<--
JP 2000502719	W	20000307	(200023)	JA	24		<--

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MX 9808035      A1 19990201 (200055)  ES                                <--
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KR 2000005139   A  20000125 (200061)  KO  [2]                          <--
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EP 938463       B1 20020619 (200240)  EN                                <--
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DE 69713515     E  20020725 (200256)  DE                                <--
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US 6492548      B1 20021210 (200301)  EN                                <--
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ES 2175390      T3 20021116 (200302)  ES                                <--
JP 3488471      B2 20040119 (200410)  JA  10
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CN 1077562      C  20020109 (200513)  ZH                                <--
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APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 9736849 A1		WO 1997-US5054	19970327
US 6492548 B1	Provisional	US 1996-14679P	19960401
AU 9725526 A		AU 1997-25526	19970327
BR 9708392 A		BR 1997-8392	19970327
CN 1220654 A		CN 1997-195087	19970327
CN 1077562 C		CN 1997-195087	19970327
DE 69713515 E		DE 1997-69713515	19970327
EP 938463 A1		EP 1997-917087	19970327
EP 938463 B1		EP 1997-917087	19970327
DE 69713515 E		EP 1997-917087	19970327
ES 2175390 T3		EP 1997-917087	19970327
JP 2000502719 W		JP 1997-535437	19970327
JP 3488471 B2		JP 1997-535437	19970327
CZ 9803168 A3		WO 1997-US5054	19970327
EP 938463 A1		WO 1997-US5054	19970327
BR 9708392 A		WO 1997-US5054	19970327
JP 2000502719 W		WO 1997-US5054	19970327
KR 2000005139 A		WO 1997-US5054	19970327
EP 938463 B1		WO 1997-US5054	19970327
DE 69713515 E		WO 1997-US5054	19970327
US 6492548 B1	Cont of	WO 1997-US5054	19970327
JP 3488471 B2		WO 1997-US5054	19970327
CZ 9803168 A3		CZ 1998-3168	19970327
ZA 9808524 A		ZA 1998-8524	19980917
KR 2000005139 A		KR 1998-707800	19980930
MX 9808035 A1		MX 1998-8035	19980930
US 6492548 B1	Cont of	US 1998-155808	19981001
US 6492548 B1		US 2000-665098	20000920

FILING DETAILS:

PATENT NO	KIND	PATENT NO
DE 69713515 E	Based on	EP 938463 A
ES 2175390 T3	Based on	EP 938463 A
JP 3488471 B2	Previous Publ	JP 200002719 W
AU 9725526 A	Based on	WO 9736849 A
CZ 9803168 A3	Based on	WO 9736849 A
EP 938463 A1	Based on	WO 9736849 A
BR 9708392 A	Based on	WO 9736849 A

JP 2000502719 W	Based on	WO 9736849 A
KR 2000005139 A	Based on	WO 9736849 A
EP 938463 B1	Based on	WO 9736849 A
DE 69713515 E	Based on	WO 9736849 A
JP 3488471 B2	Based on	WO 9736849 A

PRIORITY APPLN. INFO: US 1996-14679P 19960401
WO 1997-US5054 19970327
ZA 1998-8524 19980917
US 1998-155808 19981001
US 2000-665098 20000920

ED 20050703

AB WO 1997036849 A1 UPAB: 20060113

A process for producing an up to 5C unsaturated carboxylic acid comprises passing a second effluent stream, comprising an aldehyde, alkene and alkane prepared from a first effluent stream comprising the alkene, unreacted alkane and water prepared from a feed-stream comprising the up to 5C alkane, oxygen and a recycle gas comprising the alkane, the up to 5 C alkene, oxygen and carbon-monoxide and/or -dioxide passed to an aldehyde reaction zone, to a carboxylic acid reaction zone. The second effluent stream is then contacted with a carboxylic acid reaction catalyst at conditions effective to promote conversion of the aldehyde to an unsaturated carboxylic acid having the same number of carbon atoms to provide a third effluent stream. The third effluent stream is then separated into a liquid product comprising the carboxylic acid and a recycle gas stream comprising the recycle stream.

At least a portion of the recycle gas is then recycled to the alkene reaction zone to comprises a portion of the feed-stream. The feed-stream is contacted with an alkene reaction catalyst at conditions effective to promote the oxidation of the alkane to provide the first effluent stream.

The first effluent stream is contacted with an aldehyde reaction catalyst at conditions effective to promote the conversion of the alkene to an aldehyde having the same number of carbon atoms, to provide the second effluent stream. The third effluent stream comprises the alkene, the alkane, the unsaturated carboxylic acid and carbon monoxide and/or carbon dioxide The recycle gas stream comprises an effective amount of the alkane to enhance the efficiency of the aldehyde formation in the aldehyde reaction zone.

USE - The process may be used with propane as the alkane to produce acrylic acid (claimed) or unsaturated carboxylic aldehyde e.g. acrolein, or butane to produce methacrylic acid.

ADVANTAGE - The presence of the alkane in the alkene to aldehyde reaction can enhance the efficiency of the process (to 65-97% in the propylene to acrolein reaction). Use of propane as a feed source in the production of acrylic acid is advantageous, as it is more readily available and less expensive than the commonly used propylene. The process operates at low propane to propylene conversion, resulting in a high selectivity to propylene (80-100 mole%). As the presence of propane enhances the efficiency of the propylene to acrolein reaction this low conversion is not detrimental to the process. As the non-condensable components of the reaction product are recycled, utilisation of oxygen and the alkane is high. Recycle is very simple as the catalysts are unaffected by carbon oxides and water, thus little additional purification is required.

L85 ANSWER 32 OF 35 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
ACCESSION NUMBER: 1997-535440 [49] WPIX
CROSS REFERENCE: 2001-190695
DOC. NO. CPI: C1997-171147 [49]
TITLE: Methyl-mercapto-propanal production, for use as intermediate for d,l-methionine which is fodder additive - by conversion of propylene to acrolein in

presence of propane and reaction of acrolein with methyl mercaptan

DERWENT CLASS: B05; C03; D13; E16

INVENTOR: BROCKWELL J L; ETZKORN W G; GALLEY R A; MAHER J M; SNEAD T E; WARREN B K; YOUNG M A

PATENT ASSIGNEE: (BROC-I) BROCKWELL J L; (ETZK-I) ETZKORN W G; (MAHE-I) MAHER J M; (UNIC-C) UNION CARBIDE CHEM & PLASTICS TECHNOLOGY; (WARR-I) WARREN B K; (YOUN-I) YOUNG M A

COUNTRY COUNT: 51

PATENT INFO ABBR.:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC	
WO 9736848	A1	19971009	(199749)*	EN	46[3]		<--
AU 9725947	A	19971022	(199808)	EN			<--
EP 891316	A1	19990120	(199908)	EN			<--
US 6057481	A	20000502	(200029)	EN			<--
US 6187963	B1	20010213	(200111)#	EN			<--
JP 2002503206	W	20020129	(200211)	JA	34		<--
EP 891316	B1	20030521	(200341)	EN			<--
DE 69722195	E	20030626	(200350)	DE			<--
JP 3490459	B2	20040126	(200410)	JA	15		
MX 98008036	A1	20041201	(200562)	ES			

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 9736848	A1	WO 1997-US5100	19970327
US 6057481	A Provisional	US 1996-14507P	19960401
US 6057481	A Provisional	US 1996-14510P	19960401
US 6057481	A Provisional	US 1996-14678P	19960401
AU 9725947	A	AU 1997-25947	19970327
DE 69722195	E	DE 1997-69722195	19970327
EP 891316	A1	EP 1997-917687	19970327
EP 891316	B1	EP 1997-917687	19970327
DE 69722195	E	EP 1997-917687	19970327
JP 2002503206	W	JP 1997-535453	19970327
JP 3490459	B2	JP 1997-535453	19970327
EP 891316	A1	WO 1997-US5100	19970327
US 6057481	A	WO 1997-US5100	19970327
JP 2002503206	W	WO 1997-US5100	19970327
EP 891316	B1	WO 1997-US5100	19970327
DE 69722195	E	WO 1997-US5100	19970327
JP 3490459	B2	WO 1997-US5100	19970327
MX 98008036	A1	WO 1997-US5100	19970327
US 6187963	B1 CIP of	WO 1997-US5100	19970327
MX 98008036	A1	MX 1998-8036	19950404
US 6057481	A	US 1998-155750	19981001
US 6187963	B1	US 1998-169798	19981009

FILING DETAILS:

PATENT NO	KIND	PATENT NO
DE 69722195 E	Based on	EP 891316 A
JP 3490459 B2	Previous Publ	JP 200203206 W
AU 9725947 A	Based on	WO 9736848 A
EP 891316 A1	Based on	WO 9736848 A
US 6057481 A	Based on	WO 9736848 A
JP 2002503206 W	Based on	WO 9736848 A
EP 891316 B1	Based on	WO 9736848 A
DE 69722195 E	Based on	WO 9736848 A
JP 3490459 B2	Based on	WO 9736848 A
MX 98008036 A1	Based on	WO 9736848 A

PRIORITY APPLN. INFO: US 1996-14678P 19960401
US 1996-14510P 19960401
US 1996-14507P 19960401
US 1998-155750 19981001
US 1998-169798 19981009

ED 20050519

AB WO 1997036848 A1 UPAB: 20060113
Production of methylmercaptopropanal (MMP) comprises: (i) passing a **propylene** feedstream containing **propylene**, oxygen and a recycle gas (consisting of propane, oxygen and at least one of carbon monoxide or dioxide) to an acrolein reaction zone, where the feedstream is contacted with an acrolein reaction catalyst under conditions to promote the formation of acrolein, thus providing an effluent stream containing acrolein, propane, acetaldehyde and water; (ii) passing the effluent stream to an acrolein separation zone where it is partially condensed, giving a liquid acrolein product stream (comprising acrolein, acetaldehyde and water) and a recycle gas stream; (iii) passing the acrolein product stream and methyl mercaptan to a MMP reaction zone and contacting them with a catalyst under conditions which promote the conversion of acrolein and methyl mercaptan to MMP; and (iv) recycling at least a portion of the recycle gas stream to the acrolein reaction zone. The recycle gas stream comprises sufficient propane to enhance the efficiency of acrolein formation in the acrolein reaction zone.

USE - MMP is an intermediate for d,l-methionine (an essential amino acid, in which components of animal feed compositions are commonly deficient) and 2-hydroxy-4-(methylthio)butanoic acid (a source of methionine, widely used as a methionine supplement in animal feed formulations).

ADVANTAGE - The process provides an improved, continuous conversion of **propylene** to MMP using acrolein as an intermediate. It avoids storage of large volumes of purified acrolein (required in previous batch methods), rendering it safer. The presence of propane enhances the efficiency of the acrolein reaction (65-97%) and reduces **acrylic acid** by-product formation. Oxygen, as opposed to air, is used, so that unconverted **propylene** and oxygen can be recycled. DATA NOT AVAILABLE FOR THIS ACCESSION NUMBER

L85 ANSWER 33 OF 35 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
ACCESSION NUMBER: 1997-334711 [31] WPIX
DOC. NO. CPI: C1997-107580 [31]
TITLE: Three phase mixing apparatus for heterogeneous vapour phase reactions - comprising a reactor containing a draft tube and impeller to provide large interfacial areas between the phases, useful in ethylene oxide production
DERWENT CLASS: A41; E19
INVENTOR: DAY R W; LUMBA D; SWEENEY J B
PATENT ASSIGNEE: (PRAX-N) PRAXAIR TECHNOLOGY INC

COUNTRY COUNT: 9

PATENT INFO ABBR.:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC	
EP 781595	A1	19970702	(199731)*	EN	12[4]		<--
CA 2194033	A	19970629	(199746)	EN			<--
KR 97033014	A	19970722	(199829)	KO			<--
BR 9606185	A	19980818	(199839)	PT			<--
US 5856533	A	19990105	(199909)	EN			<--
CN 1159437	A	19970917	(200143)	ZH			<--
KR 281347	B	20010402	(200216)	KO			<--
CN 1070830	C	20010912	(200508)	ZH			<--

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
EP 781595 A1		EP 1996-120910	19961227
US 5856533 A		US 1995-580216	19951228
BR 9606185 A		BR 1996-6185	19961227
CA 2194033 A		CA 1996-2194033	19961227
CN 1159437 A		CN 1996-123484	19961227
CN 1070830 C		CN 1996-123484	19961227
KR 97033014 A		KR 1996-73541	19961227
KR 281347 B		KR 1996-73541	19961227

FILING DETAILS:

PATENT NO	KIND	PATENT NO
KR 281347 B	Previous Publ	KR 97033014 A

PRIORITY APPLN. INFO: US 1995-580216 19951228
ED 20050518
AB EP 781595 A1 UPAB: 20050827

An improved three-phase mixing apparatus for heterogeneous vapour phase reactions comprising: (a) a reactor containing liquid solvent and dispersed solid catalyst particles; (b) means for maintaining a recirculating flow pattern in the reactor; (c) feed connections to the reactor for first and a second gaseous reactants, to form a gas bubble/liquid/solid dispersion maintained in a recirculating three-phase flow pattern having large interfacial areas between the vapour and solid phase, the vapour and liquid phases, and the solid and liquid phases. Also claimed is an improved three phase mixing process for the carrying out heterogeneous vapour phase reactions.

USE - The apparatus and process are useful for reaction of oxygen with a gaseous hydrocarbon, especially ethylene (claimed) for production of ethylene oxide; and may be used for methanol production. Heterogeneous vapour-phase reactions are used to produce many large volume organic and inorganic chemicals, e.g. for oxidation, ammoxidation and oxychlorination of olefins, alkanes, and inorganic species to give, e.g. acrylic acid, acrylonitrile,

ethylene dichloride, ethylene oxide, hydrogen peroxide, maleic anhydride, methanol, phthalic anhydride, propylene oxide, vinyl acetate and formaldehyde.

ADVANTAGE - The method provides enhanced heat removal from the solid catalyst, rapid vapour phase transport of gaseous reactants to the solid catalyst, and efficient absorption of the reaction product in the liquid phase (claimed). Dispersing the solid catalyst in a liquid phase prevents catalyst overheating and sintering of the active catalyst components, which results in a loss of catalytic activity. By introducing the reactants as a dispersed phase, hazards associated with flammability and explosion are eliminated and reactant concentrations closer to reaction stoichiometry can be utilised. In the production of ethylene oxide (EO), further oxidation is prevented by absorbing EO as it forms into the aqueous solution, allowing higher conversion/pass and EO selectivity and reducing or eliminating feed recycle. Low operating temperatures can be used to further improve EO selectivity, providing capital and operating cost savings.

L85 ANSWER 34 OF 35 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
ACCESSION NUMBER: 1996-301420 [31] WPIX
DOC. NO. CPI: C1996-095841 [31]
TITLE: Acrolein and/or acrylic acid preparation from propene - by catalytic oxidation in catalyst bed containing tubes for coolant, pref. water, for efficient cooling and high selectivity.
DERWENT CLASS: A41; E17
INVENTOR: GOETZ R; LANG U
PATENT ASSIGNEE: (LINM-C) LINDE AG
COUNTRY COUNT: 1

PATENT INFO ABBR.:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC	
DE 4446418	A1	19960627	(199631)*	DE	4[1]		<--

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
DE 4446418 A1		DE 1994-4446418	19941223

PRIORITY APPLN. INFO: DE 1994-4446418 19941223
ED 20050512
AB DE 4446418 A1 UPAB: 20050512
Synthesis of acrolein (I) and/or acrylic acid (II) by catalytic oxidation of propene (III), or synthesis of (I) by catalytic oxidation of (II), is effected by passing the reactants through a catalyst bed in at least one reaction stage. The catalyst bed is cooled by indirect heat exchange with a coolant (IV), which is passed through tubes provided in the catalyst bed.

ADVANTAGE - Internal cooling allows the use of very high pressure coolant (necessary to maintain steady state conditions in the highly exothermic reaction), without the need for expensive pressure-resistant externally cooled reactors and complex double-circuit cooling systems. The heat of reaction is effectively removed, to increase selectivity of the highly temperature-sensitive reaction.

L85 ANSWER 35 OF 35 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
ACCESSION NUMBER: 1993-395272 [49] WPIX
DOC. NO. CPI: C1993-175974 [49]

TITLE: Oxidation of organic cpds. for synthesis of e.g. nitric acid from ammonia - by feeding organic cpd. and an oxidant through inert-packed and catalyst-packed beds in series

DERWENT CLASS: A41; E19; E36

INVENTOR: DREISINGER D R; DRNEVICH R F

PATENT ASSIGNEE: (PRAX-N) PRAXAIR TECHNOLOGY INC

COUNTRY COUNT: 1

PATENT INFO ABBR.:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC	
US 5266291	A	19931130	(199349)*	EN	8[2]		<--

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
US 5266291 A		US 1992-880073	19920505

PRIORITY APPLN. INFO: US 1992-880073 19920505

ED 20050510

AB US 5266291 A UPAB: 20050823

Oxidation of oxidisable reactants chosen from MeOH, benzene, naphthalene, ortho-xylene, cumene, methane, propylene, acrolein, and ammonia, comprises: a) feeding the reactant and an oxidant to a packed bed containing inert materials to form a mixture at a temperature below the autoignition temperature of the mixture; b) oxidising the reactant. The packing materials are spherically shaped particles having a maximum dia. defined by formula (I) where DP = dia. of packing materials (inches); VSD = superficial velocity at design inlet conditions (ft./sec.); VLB = laminar burning velocity of mixture (ft./sec.); Dt = dia. of packed tube (inches). Also claimed is the process where the reactant is susceptible to flammable or explosive reactions during oxidation and the mixture is then subjected to oxidation reaction using oxidation catalyst particles.

USE/ADVANTAGE - For oxidation of ammonia to produce nitric acid (claimed) and for production of acrylonitrile, acrylic acid, formaldehyde, maleic anhydride, phthalic anhydride, HCN, phenol and nitric acid. Danger of uncontrolled flammable or explosive reaction is inhibited by limiting the free gas space in the reactor and heat of oxidation can be recovered. The capacity of an existing nitric acid production plant could be increased by 350%, or a new plant could be constructed with a 70% reduction in size for the same production capacity as conventional plant.

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L5          4242 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L3 AND L4
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FILE LAST UPDATED: 26 Nov 2007  (20071126/ED)

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L5          4242 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L3 AND L4
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L14        44875 SEA FILE=HCAPLUS ABB=ON  PLU=ON  HEAT EXCHANGERS+OLD,NT/CT
L15           26 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L5 AND L14
L17        76457 SEA FILE=HCAPLUS ABB=ON  PLU=ON  HEAT EXCHANGE?/BI
L18           62 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L5 AND L17
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L28            9 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L19 AND L25
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=> S L38 NOT L35,L67
L86           22 L38 NOT (L35 OR L67)

=> D IBIB ED ABS HITSTR L86 1-22

L86  ANSWER 1 OF 22  HCAPLUS  COPYRIGHT 2007 ACS on STN
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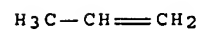
ACCESSION NUMBER: 2005:490317 HCAPLUS Full-text
DOCUMENT NUMBER: 142:484209
TITLE: Method for packing catalyst and multi-tubular **heat exchanger** type reactor
INVENTOR(S): Hino, Tomomichi; Ogawa, Akira; Takezawa, Hideyasu; Satou, Toshihiro
PATENT ASSIGNEE(S): Mitsubishi Rayon Co., Ltd., Japan
SOURCE: PCT Int. Appl., 26 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005051532	A1	20050609	WO 2003-JP15277	20031128 <--
W: CN, KR, SG, US				
PRIORITY APPLN. INFO.:			WO 2003-JP15277	20031128 <--

ED Entered STN: 09 Jun 2005
AB The invention relates to a method for packing a catalyst into a number of reaction tubes having a substantially same shape, characterized in that the difference between the amount of the catalyst packed to a reaction tube and the control target for the catalyst amount is fallen within ±10 % of the control target, and the control width for packed lengths for resp. reaction tubes is within ±20 % or the control width for pressure losses for resp. reaction tubes is within ±20 %. The method for packing a catalyst allows the improvement of the yield and the reaction rate of a catalytic vapor phase oxidation by the use of a multi-layer **heat exchanger** type reactor system.
IT 115-07-1, Propylene, processes
RL: EPR (Engineering process); PEP (Physical, engineering or chemical process); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(packing process for catalyst and multitubular **heat exchanger** type reactor)
RN 115-07-1 HCAPLUS
CN 1-Propene (CA INDEX NAME)



REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L86 ANSWER 2 OF 22 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2004:158975 HCAPLUS Full-text
DOCUMENT NUMBER: 140:199900
TITLE: Dehydrogenation process and catalysts for the conversion of alkanes into alkenes
INVENTOR(S): Schindler, Goetz-Peter; Harth, Klaus
PATENT ASSIGNEE(S): BASF A.-G., Germany
SOURCE: Ger. Offen., 7 pp.
CODEN: GWXXBX
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
DE 10237514	A1	20040226	DE 2002-10237514		20020816 <--
CA 2495290	A1	20040304	CA 2003-2495290		20030814 <--
WO 2004018391	A1	20040304	WO 2003-EP9057		20030814 <--
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RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG					
AU 2003255444	A1	20040311	AU 2003-255444		20030814 <--
EP 1532087	A1	20050525	EP 2003-792326		20030814 <--
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK					
BR 2003013434	A	20050712	BR 2003-13434		20030814 <--
CN 1675146	A	20050928	CN 2003-819287		20030814 <--
JP 2005539034	T	20051222	JP 2004-530156		20030814 <--
NO 2005000616	A	20050315	NO 2005-616		20050203 <--
MX 2005PA01617	A	20050425	MX 2005-PA1617		20050210 <--
US 2006004241	A1	20060105	US 2005-524133		20050211 <--
PRIORITY APPLN. INFO.:			DE 2002-10237514	A	20020816 <--
			WO 2003-EP9057	W	20030814 <--

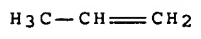
ED Entered STN: 27 Feb 2004

AB A dehydrogenation process and catalysts, containing active elements (e.g., Pt) and inactive diluents and supports (e.g., silica and zirconia), for the conversion of alkanes (e.g., propane) into alkenes (e.g., propylene) are described.

IT 115-07-1P, Propene, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(dehydrogenation process and catalysts for the conversion of alkanes into alkenes)

RN 115-07-1 HCAPLUS

CN 1-Propene (CA INDEX NAME)



L86 ANSWER 3 OF 22 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2003:862062 HCAPLUS Full-text

DOCUMENT NUMBER: 140:130715

TITLE: Photoionization detection (PID) as a high throughput screening tool in catalysis

AUTHOR(S): Senkan, Selim; Ozturk, Sukru; Krantz, Kevin; Onal, Isik

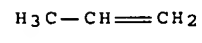
CORPORATE SOURCE: Department of Chemical Engineering, University of California, Los Angeles, CA, 90095, USA

SOURCE: Applied Catalysis, A: General (2003), 254(1), 97-106
CODEN: ACAGE4; ISSN: 0926-860X

PUBLISHER: Elsevier Science B.V.

DOCUMENT TYPE: Journal

LANGUAGE: English
ED Entered STN: 04 Nov 2003
AB A versatile photoionization detection (PID) system was developed to rapidly screen libraries of catalytic materials. The PID approach involves the use of an appropriately selected d.c. discharge lamp to obtain monoenergetic photons, which are then used to photoionize gaseous mols. whose ionization potentials are lower than the photon energy. The suitability of the PID as a rapid screening tool was demonstrated using oxidative dehydrogenation of ethane and propane as example reactions. Two 66 member ternary libraries of V-Mo-Li and V-Mo-Rb(on γ-Al2O3 were tested for ethylene and propylene formation using the 10.6 eV photons from a Kr discharge lamp. The PID screening allowed the determination of 6% V, 3% Mo and 1% Li as the optimal catalyst formulation with regard to maximum alkene production for both reactions in a matter of hours.
IT 115-07-1P, Propylene, preparation
RL: ANT (Analyte); IMF (Industrial manufacture); ANST (Analytical study); PREP (Preparation)
(photoionization detection (PID) as high throughput screening tool in catalysis)
RN 115-07-1 HCAPLUS
CN 1-Propene (CA INDEX NAME)



REFERENCE COUNT: 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L86 ANSWER 4 OF 22 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:791396 HCAPLUS Full-text
DOCUMENT NUMBER: 139:293667
TITLE: Process for production of unsaturated aldehyde or acid using Mo-Bi-Fe fixed-bed catalyst in a multitubular reactor with the inside of each tube devided axially in two reaction zones
INVENTOR(S): Hiromi, Yunoki
PATENT ASSIGNEE(S): Nippon Shokubai Co., Ltd., Japan
SOURCE: Eur. Pat. Appl., 19 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1350784	A1	20031008	EP 2003-5646	20030312 <--
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
JP 2004002209	A	20040108	JP 2002-113915	20020416 <--
JP 3939187	B2	20070704		
TW 247628	B	20060121	TW 2003-92104818	20030306 <--
US 2003191344	A1	20031009	US 2003-385676	20030309 <--
US 6960684	B2	20051101		
BR 2003000752	A	20040914	BR 2003-752	20030325 <--
SG 115529	A1	20051028	SG 2003-1504	20030326 <--
CN 1448380	A	20031015	CN 2003-108363	20030328 <--

PRIORITY APPLN. INFO.: JP 2002-96886 A 20020329 <--
JP 2002-113915 A 20020416 <--

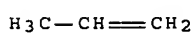
ED Entered STN: 09 Oct 2003

AB The present invention provides a process in which, when an unsatd. aldehyde and/or an unsatd. carboxylic acid are produced by carrying out a catalytic gas phase oxidation reaction by using a fixed-bed multitubular reactor which is packed with a molybdenum-containing catalyst, the deterioration of the catalyst as located at a hot spot portion can be suppressed; so that the reaction can be continued for a long time while a high yield is maintained, regardless of where the hot spot portion occurs and also even if the concentration of a raw gas is high. An oxide and/or a complex oxide including molybdenum, bismuth, and iron as essential components are used as the catalysts, and the inside of each reaction tube of the fixed-bed multitubular reactor is divided in a tubular axial direction to thus arrange at least two reaction zones, and then these reaction zones are packed with the catalysts in such a manner that the ratio R of the apparent d. of the catalyst to the true d. of the catalyst (apparent d. of catalyst/true d. of catalyst) in each reaction zone differs from that in another reaction zone.

IT 115-07-1, Propylene, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(process for production of unsatd. aldehyde or acid using Mo-Bi-Fe fixed-bed catalyst in a multitubular reactor with the inside of each tube devided axially in two reaction zones)

RN 115-07-1 HCAPLUS

CN 1-Propene (CA INDEX NAME)



REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L86 ANSWER 5 OF 22 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2003:749528 HCAPLUS Full-text

DOCUMENT NUMBER: 140:198911

TITLE: Experimental and modeling study of the oxidation of benzene

AUTHOR(S): Da Costa, I.; Fournet, R.; Billaud, F.; Battin-Leclerc, F.

CORPORATE SOURCE: Departement de Chimie Physique des Reactions, UMR 7630 CNRS, INPL-ENSIC 1, Nancy, 54001, Fr.

SOURCE: International Journal of Chemical Kinetics (2003), 35(10), 503-524
CODEN: IJCKBO; ISSN: 0538-8066

PUBLISHER: John Wiley & Sons, Inc.

DOCUMENT TYPE: Journal

LANGUAGE: English

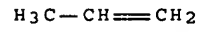
ED Entered STN: 24 Sep 2003

AB This paper describes an exptl. and modeling study of the oxidation of benzene. The low-temperature oxidation was studied in a continuous flow stirred tank reactor with carbon-containing products analyzed by gas chromatog. The following exptl. conditions were used: 923 K, 1 atm, fuel equivalence ratios from 1.9 to 3.6, concns. of benzene from 4 to 4.5%, and residence times ranging from 1 to 10 s corresponding to benzene conversion yields from 6 to 45%. The ignition delays of benzene-oxygen-argon mixts. with fuel equivalence ratios from 1 to 3 were measured behind shock waves. Reflected shock waves afforded temps. from 1230 to 1970 K and pressures from 6.5 to 9.5 atmospheric

A detailed mechanism has been proposed and allows us to reproduce satisfactorily our exptl. results, as well as some data of the literature obtained in other conditions, such as in a plug flow reactor or in a laminar premixed flame. The main reaction paths have been determined for the four series of measurements by sensitivity and flux analyses.

IT 115-07-1, Propene, formation (nonpreparative)
RL: FMU (Formation, unclassified); FORM (Formation, nonpreparative)
(exptl. and modeling study of the oxidation of benzene in jet-stirred tank reactor, behind shock waves, and modeling of literature data in a plug flow reactor or in a laminar premixed flame)

RN 115-07-1 HCAPLUS
CN 1-Propene (CA INDEX NAME)



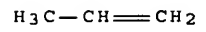
REFERENCE COUNT: 60 THERE ARE 60 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L86 ANSWER 6 OF 22 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:129055 HCAPLUS Full-text
DOCUMENT NUMBER: 138:403873
TITLE: Starch-Enhanced Synthesis of Oxygenates from Methane and Carbon Dioxide Using Dielectric-Barrier Discharges
AUTHOR(S): Zou, Ji-Jun; Zhang, Yue-ping; Liu, Chang-Jun; Li, Yang; Eliasson, Baldur
CORPORATE SOURCE: School of Chemical Engineering and Technology, State Key Laboratory of C1stry and Technology, Tianjin University, Tianjin, 30072, Peop. Rep. China
SOURCE: Plasma Chemistry and Plasma Processing (2003), 23(1), 69-82
CODEN: PCPPDW; ISSN: 0272-4324
PUBLISHER: Kluwer Academic/Plenum Publishers
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 20 Feb 2003

AB Starch was used to enhance the oxygenate formation directly from methane and carbon dioxide using dielec.-barrier discharges (DBDs). The use of starch inhibits the formation of liquid hydrocarbons and significantly increases the selectivity of oxygenates. Oxygenates produced include primarily formaldehyde, methanol, ethanol, formic acid, and acetic acid. The total selectivity is .apprx.10-40% with conversion of methane and carbon dioxide of .apprx.20%. Lower methane feed concentration favors the production of oxygenates, and higher feed flow rate leads to higher selectivity of oxygenates in the presence of starch.

IT 115-07-1P, Propene, preparation
RL: BYP (Byproduct); PREP (Preparation)
(starch-enhanced synthesis of oxygenates from methane and carbon dioxide using dielec.-barrier discharges)

RN 115-07-1 HCAPLUS
CN 1-Propene (CA INDEX NAME)

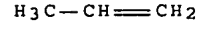


REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L86 ANSWER 7 OF 22 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:65071 HCAPLUS Full-text
DOCUMENT NUMBER: 139:55086
TITLE: Redesign of a pyrolysis furnace in the Kazan'orgsintez Open-End Joint-Stock Company
AUTHOR(S): Sharikhin, V. V.; Pechnikov, A. S.; Stepanchuk, V. V.; Sharikhin, A. V.; Kudryashov, V. N.; Gusev, Yu. V.; Fafanov, G. P.; Faizrakhmanov, N. N.; Zakirov, Sh. I.; Kuklin, O. A.
CORPORATE SOURCE: Samar. Gos. Tekh. Univ., Samara, Russia
SOURCE: Neftepererabotka i Neftekhimiya (Moscow, Russian Federation) (2002), (11), 37-40
CODEN: NNNSAF; ISSN: 0233-5727
PUBLISHER: TsNIITEneftekhim
DOCUMENT TYPE: Journal
LANGUAGE: Russian
ED Entered STN: 28 Jan 2003
AB Some ethylene production is performed in tubular furnaces with regions of either vertical coils or horizontal coils in the radiation chambers. Of these furnaces a combustion fuel system with burners various modified AGG- type (AGG-1, AGG-10) constructed in the Samarsk Government Tech. university. The pyrolysis furnace Number 5 in the Kazan'orgsintez OAO "Ethylene" unit was redesigned with conversion to vertical coil stock in the radiation chamber using a steel alloy containing 20.8% chrome and 10.77% nickel from Sweden. Studies were carried out to adjust the optimum coil lengths, operating temperature, convection patterns, and other criteria for various fuel mixts., such as for particular propane-butane fractions. NOx and CO content in the produced pyrolysis gas were monitored. Ethylene at greater than 30 weight% and propylene at 14-19 weight% were produced at butane conversions greater than 96%. An increase of ethylene in the product of about 9-10% was possible over the original horizontal coil design in furnace Number 3.
IT 115-07-1P, Propylene, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(redesign of pyrolysis furnace installing vertical coils instead of horizontal coils)
RN 115-07-1 HCAPLUS
CN 1-Propene (CA INDEX NAME)

L86 ANSWER 8 OF 22 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2002:897593 HCAPLUS Full-text
DOCUMENT NUMBER: 138:204635
TITLE: Oxidation of small alkenes at high temperature
AUTHOR(S): Heyberger, Barbara; Belmekki, Najib; Conraud, Valerie; Glaude, Pierre-Alexandre; Fournet, Rene; Battin-Leclerc, Frederique
CORPORATE SOURCE: Departement de Chimie Physique des Reactions, UMR 7630 CNRS, INPL-ENSIC, Nancy, 54001, Fr.
SOURCE: International Journal of Chemical Kinetics (2002), 34(12), 666-677

CODEN: IJCKBO; ISSN: 0538-8066
PUBLISHER: John Wiley & Sons, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 26 Nov 2002
AB If the mechanism of formation of alkenes, the main primary products of the combustion of alkanes >1000 K, is now well understood, their ways of degradation were much less studied. Following a previous modeling of the oxidation of propene in a static and a jet-stirred reactors by using an automatically generated mechanism; the present paper shows new validations of the same mechanism for ignition delays in a shock tube. It also describes the extension of the rules used for the automatic generation to the case of 1-butene. The predictions of the mechanism produced for the oxidation of 1-butene are compared successfully with two sets of exptl. results: the first obtained in a jet-stirred reactor between 900 and 1200 K; the second being new measurements of ignitions delays behind reflected shock waves for temps. from 1200 up to 1670 K, pressures from 6.6 to 8.9 atm, equivalence ratios from 0.5 to 2, and with Ar as bath gas. Flux and sensitivity analyses show that the role of termination reactions involving the very abundant allylic radicals is less important for 1-butene than for propene.
IT 115-07-1, Propene, reactions
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(oxidation of small alkenes at high temperature)
RN 115-07-1 HCAPLUS
CN 1-Propene (CA INDEX NAME)



REFERENCE COUNT: 40 THERE ARE 40 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L86 ANSWER 9 OF 22 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2002:573354 HCAPLUS Full-text
DOCUMENT NUMBER: 137:128645
TITLE: Cooled refractory fiber-reinforced ceramic rocket combustion chamber
INVENTOR(S): Steffier, Wayne
PATENT ASSIGNEE(S): Hyper-Therm, Inc., USA
SOURCE: Eur. Pat. Appl., 26 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1227071	A2	20020731	EP 2002-1818	20020125 <--
EP 1227071	A3	20040107		

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR

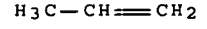
PRIORITY APPLN. INFO.: US 2001-722108 A 20010125 <--
ED Entered STN: 02 Aug 2002

AB An actively-cooled, fiber-reinforced ceramic matrix composite thrust chamber for liquid rocket propulsion systems is disclosed having internal trapezoidal-shaped cooling channels. The thrust chamber consists of an inner wall, which is fully integrated to an outer wall via radial coupling webs. Segmented annular voids between the inner wall, outer wall and adjoining radial webs form the cooling channels. The manufacturing method enables any general tubular shell geometry ranging from simple cylindrical heat exchanger tubes to complex converging-diverging, Delaval-type nozzle structures with an annular array of internal cooling channels. The manufacturing method allows for transitioning the tubular shell structure from a two-dimensional circular geometry to a three-dimensional rectangular geometry. The method offers the flexibility of producing internal cooling channels of either constant or continuously variable cross-sectional area, in addition to orienting the cooling channels either axially, helically or sinusoidally (e.g., undulating) with respect to the longitudinal axis of the tubular shell structure.

IT 115-07-1, Propylene, processes
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(precursor; fabrication of cooled refractory fiber-reinforced ceramic rocket combustion chamber)

RN 115-07-1 HCAPLUS

CN 1-Propene (CA INDEX NAME)



L86 ANSWER 10 OF 22 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2002:377427 HCAPLUS Full-text

DOCUMENT NUMBER: 137:294527

TITLE: Development of kinetic models for the formation and degradation of unsaturated hydrocarbons at high temperature

AUTHOR(S): Battin-Leclerc, Frederique

CORPORATE SOURCE: Departement de Chimie Physique des Reactions, CNRS-INPL, ENSIC, Nancy, 54001, Fr.

SOURCE: Physical Chemistry Chemical Physics (2002), 4(11), 2072-2078
CODEN: PPCPFQ; ISSN: 1463-9076

PUBLISHER: Royal Society of Chemistry

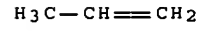
DOCUMENT TYPE: Journal; General Review

LANGUAGE: English

ED Entered STN: 21 May 2002

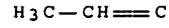
AB A review. This paper presents a review of recent work concerning oxidation and combustion reactions related to kinetic models involving unsatd. hydrocarbons, which were obtained by using EXGAS, the system for the automatic generation of detailed mechanism developed in laboratory: First, a modeling of the ignition delays of but-1-yne and but-2-yne obtained in a shock tube is described. In the second part, the types of generic reactions, which are used in the primary mechanism of the oxidation of alkenes are presented, together with a validation of the models generated by using the rules that the authors have defined. For that purpose, a modeling of exptl. results of the propene and but-1-ene oxidns. in a perfectly stirred reactor is proposed. Finally, a consideration of a study of the oxidation of n-hexadecane in a jet-stirred reactor is made which emphasizes the importance of the role of the reactions consuming alkenes in correctly reproducing the oxidation of long linear alkanes.

IT 115-07-1, Propene, reactions
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(development of kinetic models for formation and degradation of unsatd. hydrocarbons at high temperature)
RN 115-07-1 HCAPLUS
CN 1-Propene (CA INDEX NAME)



REFERENCE COUNT: 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L86 ANSWER 11 OF 22 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2002:338559 HCAPLUS Full-text
DOCUMENT NUMBER: 137:313210
TITLE: Separation of hydrocarbon gas mixtures using phenolic resin-based carbon membranes
AUTHOR(S): Fuertes, Antonio B.; Menendez, Ivan
CORPORATE SOURCE: Instituto Nacional del Carbon (CSIC), Oviedo, 33080, Spain
SOURCE: Separation and Purification Technology (2002), 28(1), 29-41
CODEN: SPUTFP; ISSN: 1383-5866
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 07 May 2002
AB Carbon membranes are prepared by the carbonisation of a thin film of phenolic resin deposited on the inner face of an alumina tube. Air oxidative treatments at temps. at 75-350°, prior to carbonisation (pre-oxidation) or after carbonisation (post-oxidation) were tested to improve the separation characteristics of carbon membranes when used with hydrocarbon mixts. such as olefin/paraffin and n-butane/iso-butane. The range of selectivities obtained for the systems studied are: ethylene/ethane, 2-11; propylene/propane, 10-50; n-butane/iso-butane, 10-40. A trade-off between selectivity and permeability or permeance was observed for all systems. The composition of the hydrocarbon mixture affects the selectivity of separation and permeance. However, feed pressure has hardly any influence on separation The modification of permeance with temperature reveals that separation takes place according to an activated mechanism. The separation of hydrocarbon mols. by the membrane seems to occur by a combination of mol. sieving and adsorption mechanisms. The storage of carbon membranes under a hydrocarbon environment (i.e. propylene or n-butane) does not cause any significant change in membrane performance.
IT 115-07-1P, Propylene, preparation
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PUR (Purification or recovery); PYP (Physical process); PREP (Preparation); PROC (Process)
(separation of hydrocarbon gas mixts. using phenolic resin-based carbon tubular membranes)
RN 115-07-1 HCAPLUS
CN 1-Propene (CA INDEX NAME)



REFERENCE COUNT: 39 THERE ARE 39 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L86 ANSWER 12 OF 22 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2002:331896 HCAPLUS Full-text
DOCUMENT NUMBER: 136:342644
TITLE: Apparatus and process for heat exchange with fluid beds
INVENTOR(S): Becker, Stanley John; Fiorentino, Michele; Williams, Bruce Leo; Bristow, Timothy Crispin; Newton, David
PATENT ASSIGNEE(S): BP Chemicals Limited, UK
SOURCE: Eur. Pat. Appl., 12 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

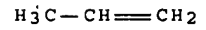
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1202017	A2	20020502	EP 2001-308291	20010928 <--
EP 1202017	A3	20041215		
EP 1202017	B1	20060517		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
US 2002074107	A1	20020620	US 2001-964881	20010928 <--
US 6602476	B2	20030805		
AT 326674	T	20060615	AT 2001-308291	20010928 <--
ES 2264962	T3	20070201	ES 2001-1308291	20010928 <--
SG 115413	A1	20051028	SG 2001-6125	20011003 <--
IN 2001MU00980	A	20050819	IN 2001-MU980	20011008 <--
NO 2001005219	A	20020429	NO 2001-5219	20011025 <--
BR 2001004818	A	20020702	BR 2001-4818	20011025 <--
JP 2002213886	A	20020731	JP 2001-328435	20011025 <--
TW 592833	B	20040621	TW 2001-90126419	20011025 <--
RU 2289075	C2	20061210	RU 2001-128725	20011025 <--
CN 1350881	A	20020529	CN 2001-137515	20011026 <--
PRIORITY APPLN. INFO.:			GB 2000-26242 A	20001026 <--

ED Entered STN: 03 May 2002

AB Apparatus and process for heat exchange with fluid beds comprises heat-exchange tubes located longitudinally with respect to the axis of a fluidization zone with a rectangular pitch, one side of which having a length (x) at least one and a half times the length (y) of the other side and/or with a triangular pitch, having two sides each at least one and a half times the length of the shortest side reduces the impact of the heat-exchange tubes on the fluidization characteristics of the fluid bed. The invention is particularly suitable for oxidation reactions using mol. oxygen-containing gas in the presence of a fluid bed of fluidizable catalyst, such as (a) the acetoxylation of olefins, (b) the oxidation of ethylene to acetic acid and/or the oxidation of ethane to ethylene and/or acetic acid, (c) the ammoxidn. of propylene and/or propane to acrylonitrile and (d) the oxidation of C4's to maleic anhydride.

IT 115-07-1, Propylene, processes
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)

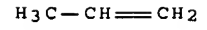
(apparatus and process for heat exchange with fluid beds)
RN 115-07-1 HCAPLUS
CN 1-Propene (CA INDEX NAME)



L86 ANSWER 13 OF 22 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2001:918854 HCAPLUS Full-text
DOCUMENT NUMBER: 136:39283
TITLE: Tube fixed-bed reactor consisting of fiber-bundle for laminar flow
INVENTOR(S): Wolfrath, Olivier; Kiwi-Minsker, Lioubov; Renken, Albert
PATENT ASSIGNEE(S): Sulzer Chemtech A.-G., Switz.; Ecole Polytechnique Federale de Lausanne (EPFL)
SOURCE: Eur. Pat. Appl., 12 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1163952	A1	20011219	EP 2000-810512	20000614 <--
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
WO 2001096008	A1	20011220	WO 2001-CH343	20010605 <--
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				

PRIORITY APPLN. INFO.: EP 2000-810512 A 20000614 <--
ED Entered STN: 21 Dec 2001
AB An anisotropic structured fixed-bed divided into 2 reactor parts is a bundle reactor consisting of fiber-bundle. The fiber-bundle ordered in the flow direction are formed from filaments; the diameter of the fiber-bundle is smaller than its length and bigger than its interspace diameter A catalyst is deposited on the fiber-bundle. The reactor is especially suitable for catalytic dehydrogenation of propane to propene with oxygen.
IT 115-07-1P, Propene, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(tube fixed-bed reactor consisting of fiber-bundle for laminar flow)
RN 115-07-1 HCAPLUS
CN 1-Propene (CA INDEX NAME)

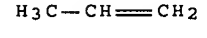


REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L86 ANSWER 14 OF 22 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2001:165851 HCAPLUS Full-text
DOCUMENT NUMBER: 134:209793
TITLE: Reactor for catalytic selective oxidation of a hydrocarbon substrate
INVENTOR(S): Perregaard, Jens; Patience, Gregory
PATENT ASSIGNEE(S): Haldor Topsoe A/S, Den.; DuPont Iberica S.A.
SOURCE: Eur. Pat. Appl., 13 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

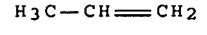
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1080779	A2	20010307	EP 2000-118999	20000901 <--
EP 1080779	A3	20010919		
EP 1080779	B1	20041208		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 2001131095	A	20010515	JP 2000-265674	20000901 <--
JP 2001131097	A	20010515	JP 2000-265675	20000901 <--
US 6515146	B1	20030204	US 2000-654299	20000901 <--
AT 284269	T	20041215	AT 2000-118999	20000901 <--
ES 2234491	T3	20050701	ES 2000-118999	20000901 <--
US 2004082671	A1	20040429	US 2003-686680	20031017 <--
US 7087801	B2	20060808		
PRIORITY APPLN. INFO.:			US 1999-152081P P	19990902 <--
			US 2000-654558 B1	20000901 <--

ED Entered STN: 09 Mar 2001
AB A reactor system for oxidative conversion of hydrocarbons comprises at least one reactor tube being provided with a plurality of perforations along a wall of the tube and a reaction zone with an active catalyst arranged on tube side and/or shell side of the reactor tube; and a bed of particulate material surrounding the at least one reactor tube.. The bed of particulate material being adapted to be fluidized by an oxygen containing atmospheric and to transport heat from the reactor tube.
IT 115-07-1P, Propylene, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(reactor for catalytic selective oxidation of a hydrocarbon substrate)
RN 115-07-1 HCAPLUS
CN 1-Propene (CA INDEX NAME)



L86 ANSWER 15 OF 22 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1999:321025 HCAPLUS Full-text
DOCUMENT NUMBER: 131:46922
TITLE: Experimental and modeling of oxidation of acetylene, propyne, allene and 1,3-butadiene
AUTHOR(S): Fournet, R.; Bauge, J. C.; Battin-Leclerc, F.
CORPORATE SOURCE: Departement de Chimie-Physique des Reactions, UMR n° 7630 CNRS, INPL-ENSIC 1, Nancy, 54001, Fr.
SOURCE: International Journal of Chemical Kinetics (1999), 31(5), 361-379
CODEN: IJCKBO; ISSN: 0538-8066
PUBLISHER: John Wiley & Sons, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 26 May 1999
AB The ignition delays of unsatd. hydrocarbons-oxygen-argon mixts. (i.e., acetylene, propyne, allene, and 1,3-butadiene) were measured behind reflected shock waves at 1000-1650 K and 8.5-10.0 atmospheric An emphasis was made to build a detailed mechanism of the reactions of C3-4-unsatd. species and benzene, which was based on the most recent kinetic data published in the literature. The mechanism was consistent with the thermochem. This mechanism was validated by comparing the results of these simulations to the exptl. results obtained in the shock tube expts. and to profiles of radical and mol. species measured in three premixed flames [acetylene (P. R. Westmoreland, et al. (1986); E. Bastin, et al. (1984)) and 1,3-butadiene (J. A. Cole, et al. (1987))]. The main reaction pathways were derived in the case of the oxidation of these unsatd. hydrocarbons and for the formation of benzene.
IT 115-07-1, 1-Propene, reactions
RL: FMU (Formation, unclassified); RCT (Reactant); FORM (Formation, nonpreparative); RACT (Reactant or reagent)
(formation and reactions of; modeling of and database building of mechanisms in oxidation and flames of C3-4-unsatd. hydrocarbons)
RN 115-07-1 HCAPLUS
CN 1-Propene (CA INDEX NAME)



REFERENCE COUNT: 47 THERE ARE 47 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L86 ANSWER 16 OF 22 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1999:238864 HCAPLUS Full-text
DOCUMENT NUMBER: 130:269188
TITLE: The ignition and oxidation of tetrahydrofuran. Experiments and kinetic modeling
AUTHOR(S): Dagaut, P.; McGuinness, M.; Simmie, J. M.; Cathonnet, M.
CORPORATE SOURCE: Laboratoire Combustion Systemes Reactifs, Orleans, F-45071, Fr.
SOURCE: Combustion Science and Technology (1998), 135(1-6), 3-29
CODEN: CBSTB9; ISSN: 0010-2202
PUBLISHER: Gordon & Breach Science Publishers
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 19 Apr 1999

AB The ignition of THF was studied in a single-pulse shock tube under reflected shock wave conditions while the oxidation of THF was studied in a high-pressure jet-stirred reactor (JSR). The present expts. cover a wide range of conditions: 2-10 atm, 0.5 ≤ .vphi. ≤ 2.0, 800-1800 K. The ignition delays of THF, measured in a shock tube, were used to propose an overall representation for the dependence of ignition delay time on the concentration of each component in the ignitable gas mixture: τall = 10-14.4exp (19590/T5) [C4H8O]0.272[O2]-0.984[AR]-0.189 (units: s, mole/dm3, K). Concentration profiles of the reactants, stable intermediates, and products of the oxidation of THF were measured in a JSR. A numerical model, consisting of a detailed kinetic reaction mechanism with 484 reactions (most of them reversible) of 71 species, describes the ignition of THF in reflected shock waves and its oxidation in a jet-stirred reactor. We observed a fairly good agreement between the exptl. results and the computations. Detailed kinetic modeling enabled identification of the major reaction paths and sensitive kinetic parameters.

IT 115-07-1, Propene, reactions
RL: FMU (Formation, unclassified); RCT (Reactant); FORM (Formation, nonpreparative); RACT (Reactant or reagent)
(THF oxidation in jet-stirred reactor studied exptl. and by kinetic modeling)

RN 115-07-1 HCAPLUS

CN 1-Propene (CA INDEX NAME)

REFERENCE COUNT: 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L86 ANSWER 17 OF 22 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1997:601583 HCAPLUS Full-text

DOCUMENT NUMBER: 127:293662

TITLE: An experimental evaluation of high-temperature composite membrane systems for propane dehydrogenation

AUTHOR(S): Yildirim, Yilmaz; Gobina, Edward; Hughes, Ronald

CORPORATE SOURCE: Department of Chemical Engineering, University of Salford, Maxwell Building, Salford, M5 4WT, UK

SOURCE: Journal of Membrane Science (1997), 135(1), 107-115
CODEN: JMESDO; ISSN: 0376-7388

PUBLISHER: Elsevier

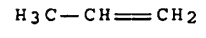
DOCUMENT TYPE: Journal

LANGUAGE: English

ED Entered STN: 22 Sep 1997

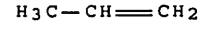
AB Expts. were performed using a high-temperature membrane reactor to evaluate the relative performance of various composite membranes in catalytic dehydrogenation of propane to propylene. Two membrane categories (porous and dense) and three types of composite membrane systems (Pd/Ag, silica and Pd-dispersed porous) were studied and their performance compared. Also considered is the special case of the Pd-Ag composite system having imperfections. The results indicate that the dense Pd-Ag composite system possesses higher performance levels in the temperature range studied. However, metal-dispersed porous systems have advantages due to their significantly higher contact surface-to-volume ratio. High hydrogen permselectivity is confirmed as a key factor in determining reactor performance in terms of conversion enhancement.

IT 115-07-1P, Propylene, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(evaluation of high-temperature composite membranes for propane dehydrogenation in propylene manufacture)
RN 115-07-1 HCAPLUS
CN 1-Propene (CA INDEX NAME)



REFERENCE COUNT: 29 THERE ARE 29 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

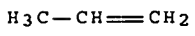
L86 ANSWER 18 OF 22 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1997:454176 HCAPLUS Full-text
DOCUMENT NUMBER: 127:123238
TITLE: Thermal decomposition of lubricants during annealing of copper tubes
AUTHOR(S): Niwa, Michiyo; Imai, Masaya; Atsumi, Tetsuro
CORPORATE SOURCE: Sumitomo Light Metal Industries, Ltd., Japan
SOURCE: Shindo Gijutsu Kenkyu Kaishi (1996), 35, 60-65
CODEN: SGKEBX; ISSN: 0370-985X
PUBLISHER: Nippon Shindo Kyokai
DOCUMENT TYPE: Journal
LANGUAGE: Japanese
ED Entered STN: 21 Jul 1997
AB Typical lubricants were pyrolyzed with nitrogen or hydrogen in order to investigate the effect of atmospheric on the thermal decomposition and discuss the mechanism of decreasing carbon film. The results obtained are as follows: (1) The main reaction of thermal decomposition of lubricants is free radical chain reaction which produces chain compds. with low mol. weight In addition, the dehydrogenation which is the side reaction of thermal decomposition results in the formation of monoarom. compds. and polycyclic aromatic hydrocarbons (PAHs). The carbon is formed by dehydrogenation of PAHs. (2) With nitrogen atmospheric, dehydrogenation is liable to proceed and the carbon is formed easily. (3) With hydrogen atmospheric, dehydrogenation is liable to be depressed as a result of promoting hydrogenation. Annealing copper tube in which atmospheric was replaced with hydrogen is effective for decreasing carbon film formation.
IT 115-07-1, 1-Propene, analysis
RL: ANT (Analyte); FMU (Formation, unclassified); ANST (Analytical study); FORM (Formation, nonpreparative)
(formation of organic compds. of low mol. weight from thermal decomposition of lubricants during annealing of copper tubes with nitrogen or hydrogen)
RN 115-07-1 HCAPLUS
CN 1-Propene (CA INDEX NAME)



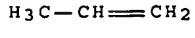
L86 ANSWER 19 OF 22 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1965:497024 HCAPLUS Full-text
DOCUMENT NUMBER: 63:97024
ORIGINAL REFERENCE NO.: 63:17753a-d
TITLE: Shock tube ignition delay studies of endothermic fuels
AUTHOR(S): Hawthorn, Robert D.; Nixon, Alan C.
CORPORATE SOURCE: Shell Oil Co., Emeryville, CA
SOURCE: (1965), (IAA Accession No. A65-26793), 12 pp.
From: Intern. Aerospace Abstr. 5(16), 2370(1965).
DOCUMENT TYPE: Journal
LANGUAGE: English
ED Entered STN: 22 Apr 2001
AB The use of hydrocarbon fuels was studied for providing cooling for advanced aircraft engines through the medium of latent, sensible, and endothermic heat sinks. The last were obtained by carrying out dehydrogenation reactions on the hydrocarbon fuel, thus producing mol. species different from those in the original fuel. In order to determine what effect this change of mol. species would have on combustion properties under supersonic conditions, systems based on propane and methylcyclohexane as starting fuels were examined in a single-diaphragm shock tube. The mol. species examined for the first system include propane, propylene, H, CH4, and C2H4, and for the latter methylcyclohexane, toluene, and H. The parameters studied in the range of values covered include equivalence ratios from 0.05 to 2, diluent concns. from 80 to 99%, temps. from 1300 to 2700°F., initial pressures from 9 to 25 psi., and reaction media compns. from zero to the equilibrium value under the conditions of interest. No general correlation of ignition delay for these fuels was developed. Sufficient data were presented to include semiquant. the effects of temperature, pressure, and fuel composition on ignition delays. Measured delay times ranged from 100 to 4000 μsec. In very lean mixts., delay times were lowest and appeared to be insensitive to mixture ratio. However, in near-stoichiometric and rich mixts., delay times increased with fuel-O ratio. Delay times for these hydrocarbons were intermediate between those for CH4 and for H in the range of temperature studied. Because of the greater influence of temperature on the ignition of hydrocarbons, it appeared that their delay times may become comparable with those for H above 1800°F.
IT 115-07-1, Propene
(ignition delay of dehydrogenated C3H8 mixture containing)
RN 115-07-1 HCAPLUS
CN 1-Propene (CA INDEX NAME)

L86 ANSWER 20 OF 22 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1962:449149 HCAPLUS Full-text
DOCUMENT NUMBER: 57:49149
ORIGINAL REFERENCE NO.: 57:9772b-c
TITLE: Formation of propylene oxide and aldehydes by oxidation of propylene under pressure in a stainless-steel U-tube reactor
AUTHOR(S): Kamiya, Yoshio
CORPORATE SOURCE: Univ. Tokyo
SOURCE: Sekiyu Gakkaishi (1962), 5, 18-22
CODEN: SKGSAE; ISSN: 0582-4664

DOCUMENT TYPE: Journal
LANGUAGE: Unavailable
ED Entered STN: 22 Apr 2001
AB Gas-phase oxidation of propylene was studied at 330-70°/below 5 atmospheric and at space velocities of 350-3500 l./hr. The product from a typical run consisted of AcH 34, propylene oxide 24, acrolein 12, and allyl alc. 5 mole-% for 12.8% conversion of propylene. The formation of H2CO and MeOH was insignificant. The wall effect was greater in a stainless-steel than in a glass vessel.
IT 115-07-1, Propene
(oxidation of)
RN 115-07-1 HCAPLUS
CN 1-Propene (CA INDEX NAME)

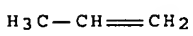


L86 ANSWER 21 OF 22 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1959:6625 HCAPLUS Full-text
DOCUMENT NUMBER: 53:6625
ORIGINAL REFERENCE NO.: 53:1176i,1177a
TITLE: The slow combustion of cyclopentane. II. Analytical results and mechanism
AUTHOR(S): McGowan, I. R.; Tipper, C. F. H.
CORPORATE SOURCE: Univ. Liverpool, UK
SOURCE: Proc. Roy. Soc. (London) (1958), A246, 64-77
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable
ED Entered STN: 22 Apr 2001
AB The products of oxidation of cyclopentane at 400° are H2O, CO, and CO2 with small amts. of H, C2H4, propylene, cyclopentene, HCHO, higher aldehydes (mainly AcH), and acids. Pressure variations are investigated. Addition of higher aldehydes reduces the induction period. A reaction scheme is proposed. Cyclopentylperoxy radicals are probably important for propagating and terminating the chains.
IT 115-07-1P, Propene
RL: PREP (Preparation)
(formation of, from cyclopentane oxidation)
RN 115-07-1 HCAPLUS
CN 1-Propene (CA INDEX NAME)



L86 ANSWER 22 OF 22 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1959:6624 HCAPLUS Full-text
DOCUMENT NUMBER: 53:6624
ORIGINAL REFERENCE NO.: 53:1176h-i
TITLE: The slow combustion of cyclopentane. I. Kinetics in coated and uncoated vessels
AUTHOR(S): McGowan, I. R.; Tipper, C. F. H.
CORPORATE SOURCE: Univ. Liverpool, UK

SOURCE: Proc. Roy. Soc. (London) (1958), A246, 52-63
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable
ED Entered STN: 22 Apr 2001
AB The kinetics of slow combustion of cyclopentane is studied in uncoated Pyrex vessels and in those coated with boric acid, KCl, and NaOH. The accelerating effect of added N is small. Cool flames were found in uncoated and boric acid coated vessels below 300°. It is concluded that the oxidation is a free radical chain reaction with delayed branching and that HO2 radicals are of minor importance, the main temperature step being homogeneous.
IT 115-07-1P, Propene
RL: PREP (Preparation)
(formation of, from cyclopentane oxidation)
RN 115-07-1 HCAPLUS
CN 1-Propene (CA INDEX NAME)



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L5         4242 SEA ABB=ON  PLU=ON  L3 AND L4
L6         1337 SEA ABB=ON  PLU=ON  METALLURGY+OLD,NT/CT(L)(BATH/OBI OR
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                DISK/OBI OR HOLLOW TUBE/OBI OR TUBE/OBI OR ROD/OBI
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L27           9 SEA ABB=ON  PLU=ON  L18 AND L25
L28           9 SEA ABB=ON  PLU=ON  L19 AND L25
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L46        7708 SEA ABB=ON  PLU=ON  L44 AND L45
L47        8287 SEA ABB=ON  PLU=ON  PLENUM/BI,ABEX
L48           1 SEA ABB=ON  PLU=ON  L46 AND L47
L49     1179846 SEA ABB=ON  PLU=ON  MACROPARTICLE/OBI OR SPHERE/OBI OR PELLET
                DISK/OBI OR HOLLOW TUBE/OBI OR TUBE/OBI OR ROD/OBI
L50         495 SEA ABB=ON  PLU=ON  L46 AND L49
L51         160 SEA ABB=ON  PLU=ON  L44(10A)L45(10A)L50
L52         137 SEA ABB=ON  PLU=ON  L44(5A)L45(5A)L50
L53         117 SEA ABB=ON  PLU=ON  L52 AND (PRY<=2003 OR AY<=2003 OR PY<=2003)

L54     1368156 SEA ABB=ON  PLU=ON  TEMPERATURE/BI,ABEX
L55          75 SEA ABB=ON  PLU=ON  L53 AND L54
L56          75 SEA ABB=ON  PLU=ON  L53 (5A)L54
L57          75 SEA ABB=ON  PLU=ON  L53 (5A) L54

     FILE 'REGISTRY' ENTERED AT 14:25:02 ON 27 NOV 2007
                E ACRYLIC ACID/CN
L58           1 SEA ABB=ON  PLU=ON  ACRYLIC ACID/CN

     FILE 'HCAPLUS' ENTERED AT 14:25:20 ON 27 NOV 2007
L59       42797 SEA ABB=ON  PLU=ON  L58
L60       16115 SEA ABB=ON  PLU=ON  L59 AND PREP/RL
L61         330 SEA ABB=ON  PLU=ON  L5 AND L60
L62           0 SEA ABB=ON  PLU=ON  L61 AND L6
L63          10 SEA ABB=ON  PLU=ON  L61 AND L14
L64          12 SEA ABB=ON  PLU=ON  L61 AND L16
L65          21 SEA ABB=ON  PLU=ON  L61 AND L17
L66          14 SEA ABB=ON  PLU=ON  L61 AND L25
L67          21 SEA ABB=ON  PLU=ON  (L63 OR L64 OR L65 OR L66) AND (PRY<=2003
                OR AY<=2003 OR PY<=2003)

     FILE 'REGISTRY' ENTERED AT 14:31:00 ON 27 NOV 2007
                SET SMARTSELECT ON
L68             SEL PLU=ON  L58 1- NAME :       7 TERMS
                SET SMARTSELECT OFF

     FILE 'WPIX' ENTERED AT 14:31:01 ON 27 NOV 2007
L69       68108 SEA ABB=ON  PLU=ON  L68
L70       68109 SEA ABB=ON  PLU=ON  L58 OR L69
L71          51 SEA ABB=ON  PLU=ON  L55 AND L70
L72        8141 SEA ABB=ON  PLU=ON  L44 AND L70
L73        1099 SEA ABB=ON  PLU=ON  L72 AND L45
L74         155 SEA ABB=ON  PLU=ON  L73 AND L49
L75          95 SEA ABB=ON  PLU=ON  L74 AND L54
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L76          20 SEA ABB=ON  PLU=ON  L75 AND FEED/BI,ABEX

L77          16 SEA ABB=ON  PLU=ON  L76 AND (PRY<=2003 OR AY<=2003 OR PY<=2003)

L78           0 SEA ABB=ON  PLU=ON  (L39 OR L40) AND L59 AND L44

     FILE 'REGISTRY' ENTERED AT 14:36:10 ON 27 NOV 2007
                SET SMARTSELECT ON
L79             SEL PLU=ON  L58 1- NAME :       7 TERMS
                SET SMARTSELECT OFF

     FILE 'WPIX' ENTERED AT 14:36:11 ON 27 NOV 2007
L80          11 SEA ABB=ON  PLU=ON  (L39 OR L40) AND L44
L81          11 SEA ABB=ON  PLU=ON  L80 AND (PRY<=2003 OR AY<=2003 OR PY<=2003)

     FILE 'HCAPLUS, WPIX' ENTERED AT 14:39:18 ON 27 NOV 2007
L82          12 DUP REM L35 L81 (1 DUPLICATE REMOVED)

     FILE 'HCAPLUS' ENTERED AT 14:43:26 ON 27 NOV 2007
L83          21 SEA ABB=ON  PLU=ON  L67 NOT L35

     FILE 'WPIX' ENTERED AT 14:43:42 ON 27 NOV 2007
L84          15 SEA ABB=ON  PLU=ON  L77 NOT L81

     FILE 'HCAPLUS, WPIX' ENTERED AT 14:44:02 ON 27 NOV 2007
L85          35 DUP REM L83 L77 (2 DUPLICATES REMOVED)

     FILE 'HCAPLUS' ENTERED AT 14:47:21 ON 27 NOV 2007
L86          22 SEA ABB=ON  PLU=ON  L38 NOT (L35 OR L67)
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